DOCUMENT RESUME

ED 332 321 EA 022 955

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TITLE Educational Expenditure Patterns in a Region of Ontario: 1980-1988.
PUB DATE 90
NOTE 55p.; Paper presented at the Annual Meeting of the Canadian Association for Studies in Educational Administration (Victoria, British Columbia, Canada, June 1990).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Boards of Education; Budgets; *Educational Finance; Elementary Education; *Expenditure per Student; *Expenditures; Foreign Countries; *Resource Allocation; *School District Spending; School Statistics; State Aid; State School District Relationship
IDENTIFIERS *Ontario (Ottawa)

ABSTRACT

*A case-cluster study of trends in elementary level educational expenditures in the Regional Municipality of Ottawa-Carleton during 1980-88 is presented in this report. The following issues are addressed: (1) the amount spent by school boards, with a focus on per pupil expenditures in "real" dollars; (2) what these funds are spent on; and (3) reasons for variations in expenditures by different school boards and over time. Four school boards categorized as urban/suburban and public/separate form the cluster of cases. Findings indicate a declining level of provincial government support for education, and an increase in regional and provincial expenditures per pupil during the years of study. Expenditures for instruction accounted for the majority of these expenditures and were influenced by salaries and teacher/student ratios. Enrollment and the provincial grant plan influenced school board spending. Two trends were identified: a shift from urban to suburban schools and a movement from public to separate schools. Finally, the study confirmed a number of inequities arising as a result of differences in the assessment bases of school boards. Twelve tables and 12 figures are included. (48 references) (LMI)

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EDUCATIONAL EXPENDITURE PATTERNS IN A REGION OF ONTARIO: 1980-1988

Répartition des dépenses d'éducation dans une région d'Ontario: 1980-1988

by

Hanne B. Mawhinney

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Faculty of Education
University of Ottawa

A Paper for Presentation to the
Canadian Association for Studies in Educational Administration
Victoria, British Columbia
June, 1990

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EDUCATIONAL EXPENDITURE PATTERNS IN A REGION OF ONTARIO: 1980-1988

The object of the study reported in this paper was to address issues raised by three questions related to educational expenditures suggested by Lawton (1987). How much do school boards spend on elementary education? What are these funds spent on? Why do the expenditures vary from board to board and from year to year? These three questions provided the framework for the study. Seven research questions were addressed in the context of this framework. Using a case cluster method trends in educational expenditures of the four boards in the Regional Municipality of Ottawa Carleton from 1980 to 1988 were investigated. The simple descriptive statistics, which have been represented graphically, are consistent with the case study mode adopted.

The study found a declining level of provincial government support for education Analysis of these trends indicates that like Ontario as a whole, after removing the effect of inflation expenditures per-pupil in the Ottawa-Carleton boards increased from 1980 to 1988. Expenditures for instruction account for the bulk of per-pupil expenditures. Salaries and pupil teacher ratios influence instruction expenditures. School board spending is constrained by trends in enrolments. Two trends were identified, a shift from urban to suburban schools and a shift from public to separate schools. Expenditures were also influenced by the provincial grant plan.

This microanalysis of school board expenditures in a particular region highlights expenditure differences among groups of boards sharing the same environmental context, as well as providing a comparison with general trends in expenditures in Ontario. In so doing, the study provides a strategy for analysis of expenditures that could be applied to other regions.

Most issues related to school finance are of perennial interest to the public, policymakers and politicians alike. School board expenditures are of particular concern in regions faced with rising taxes to cover what seem to many taxpayers to be ever expanding school board budgets. In the United States the internal allocation of school resources has become a national issue (Kirst, 1988). In many Canadian regions property taxes are increasing more rapidly than inflation, and costs per-pupil are rising (Lawton, 1987). Because the highly visible property tax has been the foundation of school revenue, increases school board expenditures are scrutinized by the public and by politicians (Taylor, 1985, p. 24). Lawton (1987) argues that, as a result, a number of questions are commonly posed by local citizens and politicians alike in expressing their concern over school board spending: How much do school boards spend on elementary education? What are these funds spent on? Why do the expenditures vary from board to board and from year to year? Are the expenditures adequate or excessive?

The Ottawa-Carleton region of Ontario, provides an example of the types of questions about school board spending that have been raised in response to school board estimates of expenditures. A local newspaper's headline succinctly expressed these concerns. It asked "Is school spending out of control?" (Berkowitz, 1989). This concern is understandable considering the size of school board expenditures in the region and the fact that school board levies represent about half of the average property tax bill for Ottawa Carleton region residents. In 1989 the two public boards spent approximately $250 million each, while the two separate boards spent between $60 and $110 million each. These expenditures came at a price for the region's residents. Residents of the region faced double digit school tax increases. The average Ottawa ratepayer, for example, paid about $125 more in school taxes in 1989 than in the previous year.

Purpose

The paper presents a case-cluster study of several trends in elementary level educational expenditures from 1980 to 1988 in a region of Ontario. Four school boards operating within the Regional Municipality of Ottawa-Carleton, distinguished as urban or suburban, and public or separate form the cluster of cases.

The purpose of this paper is to address issues raised by the first three questions posed by Lawton (1987). The question of the adequacy of expenditures is difficult to address, and beyond the scope of this paper.

The issues addressed in these trends are:

(A) How much do school boards spend?

> Assessments of how much school boards spend on education, are commonly expressed per-pupil in current dollars. This approach does not allow an assessment of the historical trend in expenditures. To enable a longitudinal assessment of trends, in this paper per-pupil expenditures are expressed in "real" or constant dollars.

(B) What are these funds spent on?

Education in Ontario, as in other areas, is "among the most labor-intensive of organizational activities" (Paquette, 1988, p. 23). In 1986 almost 71 per cent of the total operating expenditures for 99 boards in Ontario was consumed by professional salaries (p. 23). The functional classification of instruction is generally viewed as accounting for the bulk of school board expenditures. A board's expenditures on instruction are influenced by factors such as the pupil-teacher-ratio, and the salaries of teachers. In this paper trends in per-pupil instructional expenditures are assessed.

(C) Why do the expenditures vary from board to board and from time to time?

School board spending is commonly viewed as constrained by a number of factors, including the enrolment, the funding provisions possible as a result of the grant structure, the property assessments in the district, and factors influencing instructional expenditures. A number of issues are raised by each of these constraints. A number of shifts in enrolment are visible in school board enrolments in Ontario: from urban to suburban districts, from public to separate districts. There has also been a trend in shifting the burden of support from the provincial government to the local ratepayer. Differences in the assessment base of a school board becomes a critical determinant of the board's capacity to spend above the ceiling established by the province.

Issues raised by each of these constraints are discussed in the context of current research on financing education in Ontario. The set of research questions generated guide this cross-case investigation of the historical trends in expenditures in the four boards in the Ottawa-Carleton region.

Research Framework

Public discontent with educational costs is in some ways to be expected because of the nature of educational services. From an economic perspective education can be seen as a public good. This implies that the provision of educational services are not directly tied to the payments made for it. As a result, it is likely that individuals will feel confident that minimizing their own contribution will not affect the benefits they receive from educational services (Richards and Ratsoy, 1987). In this context the public debate and political rhetoric generated by expenditures in education is understandable.

Despite the annual public debate over school board expenditures, and the political rhetoric this debate generates, the internal allocation of resources within school districts has received little scholarly attention (Kirst, 1988). There have been several important studies to investigate the pattern of school expenditure in various school districts in the United States (Black,et al., 1989; Feldstein, 1975; Ladd, 1975; Lovell, 1978; Reilly, 1982). The property tax revolts and the recession of the early 1980s provided the impetus for some research effort on school board expenditures (Kirst, 1982, 1983). From 1983-1988, U. S. concerns "international economic competition helped to produce school spending increases of 21 percent after inflation for the nation as a whole" (Kirst, 1988, p. 366). As

a result, finance research in the U. S. tended to focus on paying for "reform" More recently the internal allocation of school resources has emerged as a national issue, and as a focus of finance research, in the context of a charge that the "portion of school spending devoted to teachers' salaries dropped from 50 percent to 41 percent between 1970 and 1987" (p. 365)

Although researchers in Canada do not share this current concern of American researchers in educational finance, they do share a number of other concerns reflected in the three questions framing the issues addressed in this paper.

A. How much do school boards spend?

An analysis of the trends in expenditures per-pupil must take into account changes in the level of prices. Accounting for changes in the price levels of educational inputs is difficult but must be done in order to measure the effect of inflation. To make valid comparisons of expenditures, the costs in "current dollars" must be distinguished from "constant dollar" costs. Current costs do not account for inflation, but rather reflect expenditures made.

Constant dollars are adjusted for inflation, allowing historical comparisons of costs. The normal measure of inflation is a Price Index such as the Consumer Price Index, which measures the price of goods and services consumed by average families. The CPI is, however, inappropriate to use for an assessment of the effect of inflation on educational expenditures. The Education Price Index provides a more appropriate measure of the influence of inflation. Current dollars can be transformed into constant dollars through deflation by the Education Price Index (EPI).

The EPI is an input index that measures price changes of a fixed basket of goods and services purchased by school boards. The reference year is 1981=100. The index is comprised of two components; salaries and wages of teachers and non-teaching personnel and a "non-salary" component which includes: "instructional supplies"; "school facilities, supplies and services"; and "fees and contractual services" (Education Statistics Bulletin, 1987). The EPI is calculated for each province as well as for Canada as a whole. A detailed comparison of the EPI and the Consumer Price Index found that while the two do not vary in exactly the same way, they are relatively close in value (see Lawton, 1983, p.34). In this paper, the EPI for Ontario is used to deflate educational costs. Using this technique, it is possible to determine real growth in school board expenditures per-pupil.

Table 1 presents data on the Consumer Price Index and the Education Price Index for Canada and Ontario for the years 1980 to 1988.

Table 1

Education Price Index and its Two Main Sub-indices, Canada and Ontario, 1980- 1988 (1981 = 100)

	1980	1981	1982	1983	1984	1985	1986	1987[1]	1988[1]
Consumer Price Index	88.9	100.0	110.8	117.2	122.3	127.2	132.4	139.2	145.7
Canada									
Education Price Index	89.2	100.0	113.3	119.4	124.7	128.7	133.3	140.1	146.7
Salaries and Wages	90.0	100.0	113.4	119.3	124.2	127.9	132.8	139.6	146.1
Teachers' salaries	90.8	100.0	112.5	117.8	122.4	126.0	130.9	137.6	144.0
Non-teaching salaries	84.0	100.0	120.6	131.4	138.0	143.2	148.4	156	163.3
Non-Salary	85.6	100.0	112.8	119.8	127.3	132.4	135.5	142.4	149.1
Instructional supplies	87.2	100.0	111.1	116.2	123.2	127.4	130.7	137.4	143.8
School facilities, supplies, services	80.7	100.0	113.2	121.2	126.8	132.9	126.6	133.1	139.4
Fees and contractual services	88.6	100.0	113.9	121.6	131.0	135.9	146.8	154.3	161.6
Ontario									
Education Price Index	89.6	100.0	112.2	122.1	127.9	132.9	138.6	145.7	152.5
Salaries and Wages	90.6	100.0	112.1	122.6	128.1	133.0	139.4	146.5	153.4
Non-Salary	85.3	100.0	112.5	119.5	127.0	132.3	134.8	141.7	148.4

Note. From "Education price index and its two main sub-indices, Canada and Provinces, 1977-1986 (1981 = 100)" Statistics Canada, 1987, Education Statistics Bulletin, 9(7).

[1] Based on CPI rates of 5.1% and 4.7% for 1987 and 1988 respectively

B. What are these funds spent on?

In Ontario educational expenditures are classified by function and economic classification. Functional classifications reported in the Ministry of Education Survey of School Board Financial Statements include, business administration, general administration, computer services, instruction, plant operation and maintenance, transportation, capital expenditures, debt charges, and miscellaneous expenditures. Richards and Ratsoy (1987) note that in Canada the proportion of total expenditures accounted for by these categories have tended to remain relatively stable.

Instruction, as would be expected given the labor intensive nature of education, accounts for the largest share of total expenditures. The functional classification of "Instruction" includes instructional supervision and central services, central services, regular day school, special education services, driver education services, educational research and evaluation, and continuing education. These functional categories include salaries and wages, employee benefits, books energy and supplies, capital expenditure, replacements, leases of buildings, sites and instructional computers, fees and contractual services and other expenditures.

The functional category of instruction is primarily comprised of teachers' salaries. In fact, is commonly argued that salaries and elements of working conditions are the main variables accounting for differences in per-pupil expenditures (Lawton, 1987). Average salaries of Ontario teachers are determined through through collective bargaining, as are many elements of working conditions such as pupil-teacher ratios. Teachers in Ontario, like most throughout Canada, are remunerated according to a "grid" which provides for additional increments for both qualifications and experience. Variations in average salaries between boards can be attributed to differences in qualifications and experience. However, the impact of collective bargaining can also account for some of these variations.

Another component of instructional expenditures is related to the working conditions of teachers. This is the pupil-teacher ratio, which although not directly tied to salaries, has an important impact of per-pupil educational expenditures. Trends in the numbers of students and in pupil-teacher ratios (PTR) are of interest in analyses of changes in the quality or quantity of educational services made available. Changes in the numbers of students indicate changes in demand for education and changes in pupil-teacher ratios suggest changes in the quality of the educational services offered (Lawton, 1987, p. 103).

Differences in salaries and working conditions have a major impact on per-pupil instructional expenditures. They are also a factor in accounting for the differences in expenditures between boards. In this context trends in salaries and working conditions can also provide answers to the third question framing this paper: Why do expenditures vary between boards and over time?

C. Why do the expenditures vary from board to board and from time to time?

In Canada, researchers in educational finance suggest that during the past decade "the financing of education has reached crisis proportions" (Taylor, 1985, p. 24). Lawton (1989) points out that various governments have responded by significantly restructuring their educational systems. Indicating the significant changes instituted by governments in England, New Zealand, Australia and the U. S. A., Lawton argues that the "winds of change" are beginning to be felt in Ontario. Among these changes are a movement to "tightening of the links between payment and service", which is seen in the expectation that local ratepayers will pay more of the cost of local services (p. 4). Consistent with this change is the change in format for provincial grants that places limits on the provincial government's role in funding education (p. 5). The result is that "greater delegation of fiscal decisions on distributed funds is occurring" (Jefferson, 1989, p. 253). However, as Jefferson points out, "devolution is not decentralization. . . the local level is still under intensive accountability to the provincial level for the results of its decisions" (p. 253).

In fact, Paquette (1988) suggests that school board spending in Ontario is "highly constrained and regulated" by various fixed costs as well as by collective agreements and provincial grant plans (p. 22). The framework established for funding is the most fundamental of these constraints. Ontario's grant plans are established on the basis of the trends influencing province's capacity to pay for education. Lawton (1989) identifies five of these key trends: enrolment, property assessment (residential and corporate, personal income, debt, and competing demands (p. 5).

In this paper three of these constraints to school board expenditures will be investigated: enrolments, grant plans, and property assessment.

Enrolments

Lawton (1989) proposes that four key trends in enrolment are visible in Ontario schools (p. 5). The first trend is the "baby boom echo". This echo accounts for increased enrolments in kindergarten classes. A second trend can be seen in the declining enrolments in highschools resulting from the movement through the system of the "baby bust" of the late 1960s and 1970s. The third trend is the enrolment of older students, immigrants and the baby boomers in highschools and universities. The fourth trend Lawton identifies is the shift in enrolment from urban to suburban schools and from public to separate schools. Two of these trends will be assessed in this study: the impact of the baby echo, and the shifts in enrolments.

Provincial Grant Plan

School board spending is also constrained by the structure of the provincial grant plan. In Ontario the Mill Rate Equalization Grant Plan was adopted in 1977. The plan emphasizes "the provincial guarantee that one mill of local tax effort on equalized assessment will generate the same amount of revenue regardless of the geographical local

of the local school authority" (Jefferson, 1989, p. 250). The equalization of local mill rates is limited to a provincially established grant ceiling. Block transfers are also transferred to schools boards for delivery of their own policies and programs (p. 251). There are a number of problems with the Ontario grant structure. One of these problems is related to the adequacy of the grant ceiling. A second problem concerns the adequacy of year to year adjustments. Transfer grants from the province of Ontario to local school boards have been declining during the last decade (Lawton, 1989, Jefferson, 1989). The burden for supporting school board expenditures is being transferred to local ratepayers. Lawton (1989) argues that the purpose of these trend is to encourage school boards to be more efficient, more accountable to their ratepayers, and to be more effective in producing educational outcomes desired by the community (p. 4). Consistent with these purposes, in Lawton's view, is the purpose inherent in the increasing provisions for choice in Ontario's educational system. The extension of full funding to the separate schools and the creation of francophone school boards illustrate these provisions. In this paper issues related to both the adequacy of the grant ceiling and the adequacy of the year to year adjustments are examined.

Assessment Base of Boards

One of the most significant constraints on above ceiling expenditures by a school board arises from the board's assessment base. Lawton (1989) notes that economic expansion in parts of Ontario has resulted in a "tremendous growth in both the real and assessed value of property, residential and corporate" (p. 5). However, this growth is unevenly distributed among boards. The differing assessment capacities between separate and public systems and between assessment rich districts and assessment poor districts results in differing capacities to spend above the grant ceiling. The differences in the assessment bases of the four boards in the Ottawa-Carleton region will be discussed in this paper.

Research Questions

The following research questions were derived from the preceding exploration of the issues related to school board expenditures.

A. How much do Ottawa-Carleton school boards spend on elementary education?

1. Expenditures per-pupil

    a. What trends in per-pupil expenditures (in real or constant dollars) are visible?

B. What are these funds spent on?

2. Instruction expenditures

    a. What trends in per-pupil instruction expenditures are apparent?

3. Salaries
   a. What are the trends in salary differences?
   b. What trends in teacher qualifications and experience can be seen?

4. Working Conditions
   a. How do trends in pupil-teacher ratios relate to trends in per-pupil expenditures?

C. Why do the expenditures vary from board to board and from year to year?

5. Enrolments
   a. Is there a visible trend in increasing elementary enrolments reflecting the baby boom echo?
   b. Can a shift in enrolments from urban to suburban schools, and from public to separate schools be identified?

6. Grant Plan
   a. What trends in per-pupil grant ceilings are indicated?
   b. Can a trend in transferring responsibility for educational expenditures from the provincial to the local level be detected?

7. Assessment Base
   a. What differences exist in the assessment bases of the four boards in the Ottawa-Carleton region?

Research Design

Trends in the various factors influencing school board expenditures interact with the unique social and political context of each school board, and in so doing establish the parameters for spending choice for that board. Paquette (1988) argues that while the "discretionary portion of a board budget is extremely small, perhaps as little as one to three per cent in Ontario" spending choice does exist. He points out that trends in spending suggest "the particular costs experienced by various boards" as well as marking the "major patterns in the evolution of beliefs about effective use of scarce educational resources" (p. 22).

Researchers have recognized the value of studying province-wide school board spending patterns to identify the interaction of the various trends influencing the level of funding for education. Commonly in Canada as a whole and Ontario specifically has focused on provincial level comparisons of levels of expenditure (e.g. Atherton, 1985; Brown, 1981; Lawton, 1983; Paquette, 1988;). Paquette (1988) points out that spending patterns of boards sharing some "significant environmental characteristics, however, may be much more an indication of local, preference, belief and necessity" (p. 22). Although the expenditure patterns of such groups of boards must be seen in the context of their interaction with the provincial funding provisions, these patterns do provide a crude gauge,

"to measure differences in the shared beliefs of trustees about how to buy the best available education.

Despite the utility of assessments of spending patterns of boards sharing a similar environmental context, little research on regional patterns of school expenditures has been undertaken in Ontario. The microanalysis of school board expenditures in a particular region has the advantage of providing a measure of expenditure differences among groups of boards sharing the same environmental context. This paper undertakes such a microanalysis of expenditure trends. In doing so the analysis also provides a strategy for analysis of expenditures that could be applied to other regions of Ontario. The analysis facilitates the identification of specific expenditure patterns at the elementary level in the four school boards operating in the Ottawa-Carleton region for the period of time from 1980 to 1988. The elementary level was selected because data on the operations of Roman Catholic secondary schools, which now receive full public funding, is available only after 1987.

Method

The case cluster method, used in this paper is well suited to illustrating the expenditure trends within a single board, as well as facilitating comparisons of trends among the four boards in the region. Yin (1981) suggests that case studies may: explore a phenomenon, describe a situation, or test explanations. The case studies clustered in this analysis describe the expenditure patterns four boards sharing a general environmental context. However, the boards also face distinct constraints. Two of the boards are urban, one public and the other separate. The other two boards are suburban, one also being public and the other separate. Comparison of the trends in school boards, demonstrating this range in constraints, facilitates the exploration of some of the issues of concern in all regions of Ontario.

A number of techniques are available to compare school districts within any province or state, and among provinces or states, including expenditure analysis and cost of education indices. Expenditure analysis is a useful technique for both intradistrict decision making and interdistrict comparisons. The historical analysis of trends in expenditures, such as this paper presents, can also be undertaken. The simple descriptive statistics which have been represented graphically in the study are consistent with the case study mode adopted. All data have been obtained from board financial statistics reported to the Ontario Ministry of Education.

The Cases

The cases described in this paper are drawn from a sample of four school boards: the Ottawa Board of Education, the Carleton Board of Education, the Ottawa Roman Catholic School Board, and the Carleton Roman Catholic School Board (referred to as respectively the OBE, the CBE, the ORCSB, the CRCSB).

The creation of the Regional Municipality of Ottawa-Carleton, in 1969 coincided with a major reorganization of the province's school boards. The reorganization resulted in the amalgamation of a number of smaller school boards into two public school boards and two separate school boards: the Ottawa Board of Education, the Carleton Board of Education, the Ottawa Roman Catholic Separate School Board, and the Carleton Roman Catholic Separate School Board. A fifth school board, the Ottawa-Carleton French-Language School Board was created in 1988, comprised of two separate sectors; a public and a Catholic sector. Since this board only began formal operation in January 1989, it was not included in the analysis undertaken in this study.

The Ottawa-Carleton school boards have worked on a number of shared projects since the reorganization in 1969. The Directors of Education of the boards have formed a liaison committee to foster co-operative efforts. A number of such efforts have been developed. For example they have established and maintained a media center, co-operated on programs for trainable retarded students, and developed programs in the arts, continuing education and adult basic education. In addition, the boards of the region have shared school facilities (Roy Commission, 1986, p. 34).

The Carleton Board of Education (CBE) serves a large geographic area comprised of a mixed urban, suburban and rural population. In 1985 more than 22,000 of the board's students were transported to school each day on 645 regular bus routes covering 50,000 kilometers. The CBE purchases programs and services for about 2,000 students. Unlike other boards it has tended to favor composite rather than specialized secondary schools (Roy Commission, 1986, p. 31)

The Ottawa Board of Education (OBE) provides special programs in the arts and technological studies to all students in the region. Its specialized programs in arts, French as a second language, special education, and continuing education have attracted students from other boards and different regions. In addition, the OBE has been particularly active in responding to the needs of the community through extensive adult education programs. The board provides programs directed at upgrading employment skills, general education courses and general interest courses in French and English (Roy Commission, 1986, p. 31).

The Ottawa Roman Catholic Separate School Board (ORCSSB) serving the same municipalities as the Ottawa Board of Education; Ottawa, Vanier, and Rockcliff Park, undertook a major consolidation of schools because of declining enrolment. The board offers an extensive French Immersion program from Junior Kindergarten to Grade 6, in which instruction is offered equally in English and French. The board also provides special-education services for French-language students in the Ottawa-Carleton region (Roy Commission, 1986, p. 34).

The Carleton Roman Catholic Separate School Board (CRCSB) has been experiencing increasing enrolments for a number of years. Similar to the CBE, the board's jurisdiction covers a large rural area, and as a result school transportation is also a major service expense. Until the creation of the new French-language school board in 1989, the CRCSB

administered its French- and English language programs and services through parallel structures.

Results and Discussion

A. How much do Ottawa-Carleton school boards spend on elementary education?

1. Expenditures per-pupil in Ottawa-Carleton School Boards

a. What trends in per-pupil expenditures (in real or constant dollars) are visible?

The actual total expenditures per-pupil by the four school boards in the Ottawa-Carleton region can be deflated using the Education Price Index to reveal the real total expenditures per-pupil (in 1981 dollars). Comparisons between boards prior to 1987 is complicated by the fact that public funding for separate school will be reflected in the elementary columns, however, Table 2 gives the actual and real total per-pupil expenditures of the four school boards.

Figure 1a illustrates the differences in real per-pupil elementary expenditures in the four boards as well as with the province as a whole, from 1980 to 1986. At the elementary level the Ottawa Board of Education has led the other boards, and the boards in the province as a whole, in real expenditures per-pupil. However, all four boards in the region have been consistently above the average real expenditures per-pupil in Ontario schools. These graphs illustrate that, while inflation has accounted for a proportion of increased per-pupil expenditures, in the case of elementary schools in Ontario, real expenditures per-pupil have also risen.

Assessing the average annual rates of change on the basis of real or constant dollars reveals that at the elementary level, three boards, the Carleton Board of Education, the Ottawa Board of Education and the Carleton Roman Catholic Separate School Board all increased their per-pupil expenditures at an average annual rate of 3%, while the Ottawa Board of Education's rate of increase was marginally less, at 2%. These average annual rates of change are comparable with the rates of change for in elementary sectors for the province as a whole. When inflation is accounted for the real annual rate of increase for elementary school per-pupil expenditures was approximately 3%. Table 3 illustrates these average annual rates of change.

The average rates of change in total real expenditures for the elementary sector are consistent with Brown's (1983) analysis of Ontario's current and real expenditures per-pupil for the time period immediately preceding this analysis. Brown found that Ontario had been very successful in controlling the costs of education during the period from 1975 to 1981. Figure 1b illustrates the actual and real elementary expenditures per-pupil for Ontario from 1980 to 1986.

Table 2

Actual and Real Total Per-Pupil Expenditures for the Ottawa Board of Education (OBE); the Carleton Board of Education (CBE); the Carleton Roman Catholic Separate School Board (CRCSSB); and the Ottawa Roman Catholic Separate School Board (ORCSSB), 1980-1988

ACTUAL ELEMENTARY PER-PUPIL EXPENDITURES				
Year	CBE	OBE	CRCSSB[1]	ORCSSB[1]
1980	2,495	3,108	2,483	2,492
1981	2,967	3,445	2,924	2,791
1982	3,387	3,922	2,967	3,331
1983	3,758	4,205	3,494	3,545
1984	3,932	4,568	3,661	3,943
1985	4,358	5,064	4,155	4,422
1986	4,656	5,578	4,476	4,564
1987	4,960	5,951	4,630	4,656
1988[2]	5,236	6,305	5,365	5,062
REAL ELEMENTARY PER-PUPIL EXPENDITURES				
1980	2,785	3,469	2,771	2,781
1981	2,967	3,445	2,924	2,791
1982	3,019	3,496	2,644	2,969
1983	3,078	3,444	2,862	2,903
1984	3,074	3,572	2,862	3,083
1985	3,279	3,810	3,126	3,327
1986	3,359	4,025	3,229	3,293
1987	3,404	4,084	3,178	3,196
1988*	3,433	4,134	3,518	3,319

Note: From Survey of School Board Financial Statements and Comparative Per-Pupil Costs by Expenditure Function, 1980-1988, Ministry of Education, Ontario

[1] Until 1987 the extension of funding to separate schools will be reflected in elementary column.

[2] Data for 1988 based on School Board Estimates

Figure 1

Figure 1a. Real Expenditures Per-Pupil,for the OBE, CBE, CRCSSB, ORCSSB, 1980-1986

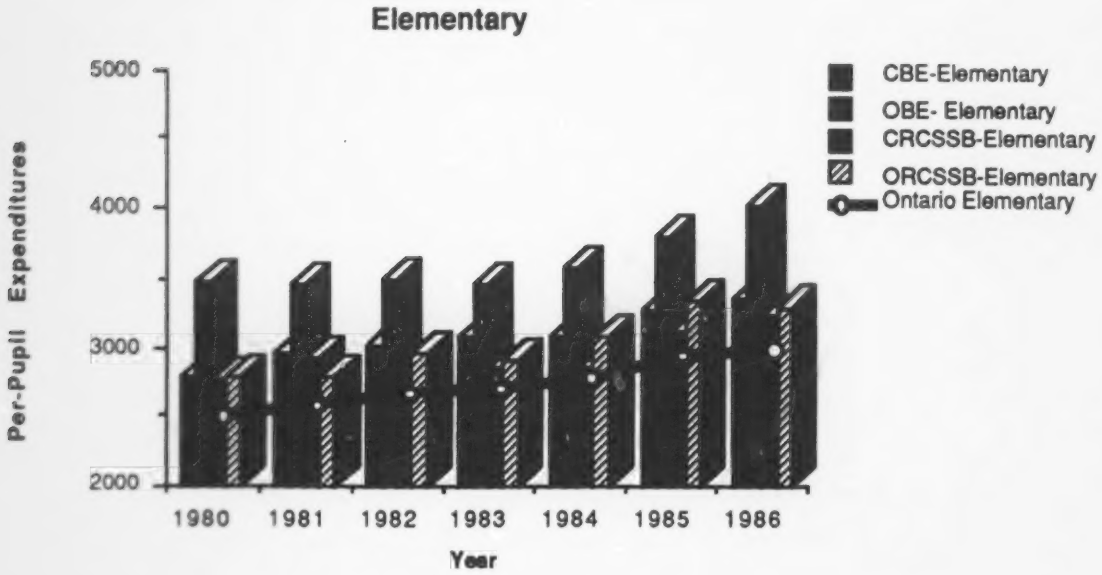

Figure 1b. Real and Actual Per-Pupil Expenditures, Ontario, 1980-1986

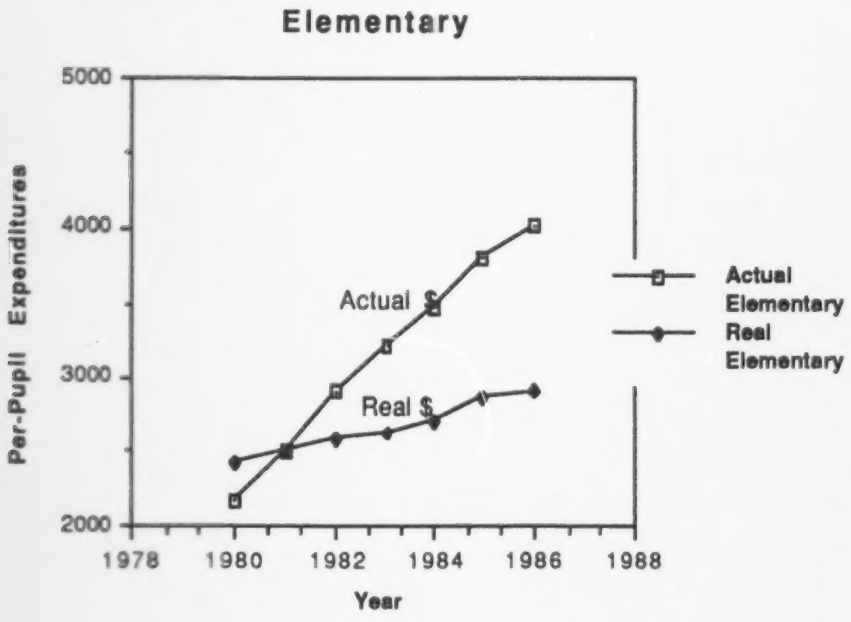

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Table 3

Per Cent Change in Real Total Per-Pupil Expenditures 1980-1988

Per Cent Change in Real Total Per-Pupil Expenditures Elementary				
Year	CBE	OBE	CRCSSB	ORCSSB
I981	7%	-1%	6%	0%
1982	2%	1%	-10%	6%
1983	2%	-1%	8%	-2%
1984	0%	4%	0%	6%
1985	7%	7%	9%	8%
1986	2%	6%	3%	-1%
1987	1%	1%	-2%	-3%
1988	1%	1%	11%	4%
Average Annual Per Cent Change	**3%**	**3%**	**3%**	**2%**

Elementary Real Per-Pupil Expenditures by All Ontario School Boards,1980 - 1986		
Year	Expenditure	% Change
1980	2,438	2.41%
1981	2,512	3.04%
1982	2,586	2.95%
1983	2,636	1.93%
1984.	2,707	2.69%
1985	2,861	5.69%
1986	2,898	1.29%
Average Annual Change 2.86%		

Note: From Education Statistics Ontario, 1986 Ontario Ministry of Education,

B. What are these funds spent on?

2. Instruction expenditures

a. What trends in per-pupil instruction expenditures are apparent?

A comparison of the real per-pupil instructional expenditures of the four boards in the Ottawa-Carleton region is provided in Table 4a. These comparisons suggest that the Ottawa Board of Education has led the four other boards in real per-pupil instruction expenditures from 1980 to 1988. As an assessment-rich urban board the OBE has the resources with which to support these expenditures. In contrast, the rapidly expanding suburban separate board, the Carleton Roman Catholic Separate School Board consistently spent less per-pupil on instruction during this time period. Figure 2 illustrates these relationships.

Per-pupil instruction expenditures of the four boards from 1980 to 1988 indicate patterns of change similar to the patterns indicated in the boards' total expenditures. At the elementary level the greatest variability between total and instructional expenditures was shown by the Ottawa Roman Catholic Separate School Board whose per-pupil instruction expenditures increased at an average annual rate of 4%, while total per-pupil expenditures increased at an average annual rate of only 2%. Table 4b provides the rates of change for per-pupil total (T) and instructional (I) expenditures at the elementary level.

A common observation is that education, as a labor intensive activity normally allocates the major portion of its total operating expenses to salary items and employee benefits. Paquette (1988) found that professional salaries accounted for 70.5% of total operating expenditures for the 99 Ontario school boards surveyed. Analysis of the per cent of total per-pupil expenditures accounted for by the category "Instruction" in the four boards in the Ottawa-Carleton region reveals similar proportions. This analysis also found that at the elementary level the per cent of total per-pupil expenditures accounted for by per-pupil instruction expenditures in the Ottawa-Board of Education (OBE) were consistently higher than the other three boards in the region, and that this per cent has increased in the years from 1980 to 1988, from 68% to 74% respectively. The increase in instruction costs cannot be accounted for by increases in enrolments since during the same period of time the average annual decrease in total enrolments in the OBE was -2.4%. As will be seen other components such as pupil-teacher ratios, teacher salary settlements, experience, and qualifications have an impact on these proportions.

In 1988 the Ottawa Roman Catholic Separate School Board (ORCSB) was second to the OBE in the per cent of total expenditures accounted for by per-pupil instructional expenditures. From 1980 to 1988 this per cent increased from 66% to 73%. It must be kept in mind that prior to full funding in 1985 the per-pupil expenditures are not comparable with those of the pupil boards, however, the trends can be assessed. As a per cent of total per-pupil expenditure, per-pupil instructional expenditures for the Carleton Board of Education (CBE) also increased from 1980 to 1988 from 64% to 71% at the elementary level.

Table 4

Ottawa Board of Education (OBE); the Carleton Board of Education (CBE); the Carleton Roman Catholic Separate School Board (CRCSSB); and the Ottawa Roman Catholic Separate School Board (ORCSSB), 1980-1988

4a. Real Instructional Per-Pupil Expenditures (Elementary)

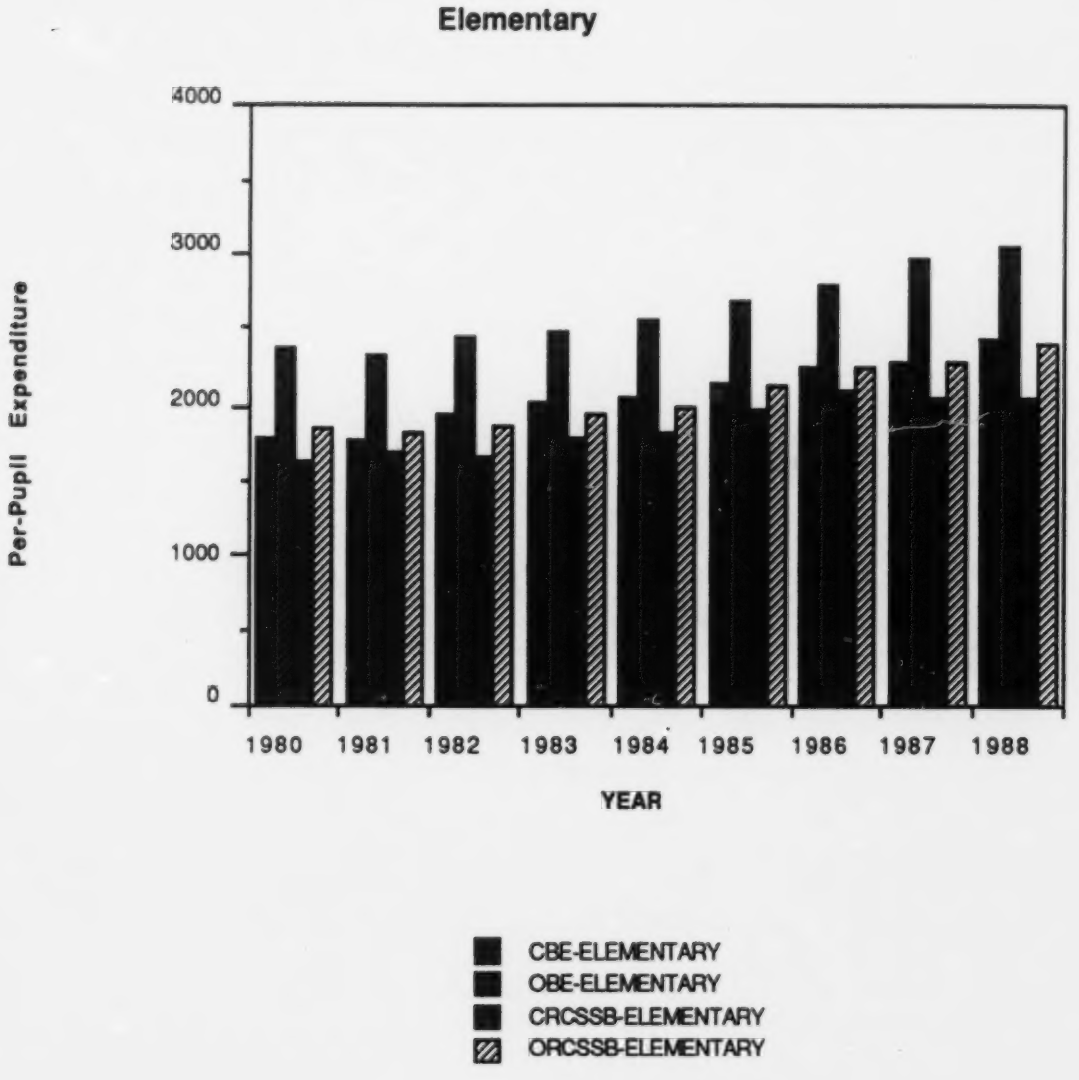
Year	CBE	OBE	CRCSSB	ORCSSB
1980	1,776	2,368	1,609	1,824
1981	1,753	2,317	1,673	1,802
1982	1,938	2,445	1,638	1,845
1983	2,011	2,475	1,769	1,930
1984	2,047	2,570	1,802	2,000
1985	2,151	2,703	1,959	2,126
1986	2,245	2,801	2,085	2,237
1987	2,273	2,970	2,041	2,269
1988	2,432	3,046	2,052	2,415

4b Per Cent Change in Real Total (T) and Per-Pupil Instruction (I) Expenditures (Elementary)

Year	CBE		OBE		CRCSSB		ORCSSB	
	T.	I.	T.	I.	T.	I.	T.	I.
I981	7	-1	-1	-2	6	4	0	-1
1982	2	11	1	6	-10	-2	6	2
1983	2	4	-1	1	8	8	-2	5
1984	0	2	4	4	0	2	6	4
1985	7	5	7	5	9	9	8	6
1986	2	4	6	4	3	6	-1	5
1987	1	1	1	6	-2	-2	-3	1
1988	1	7	1	3	11	1	4	6
Average Annual Per Cent Change								
	3	4	3	3	3	3	2	4

Figure 2

Real Per-Pupil Instruction Expenditures, CBE, OBE, ORCSSB, CRCSSB, 1980-1988



The per cent of total per-pupil expenditures accounted for by instructional expenditures in the Carleton Roman Catholic Separate School Board, was consistently lower than the other boards In fact, despite an increasing proportion of total expenditures accounted for by instruction in the early 1980s, by 1988 the CRCSSB's elementary instructional expenditures where back to their 1980 proportion of total expenditures (58%).

The proportion of total per-pupil expenditures accounted for by instructional expenditures in the four boards in the Ottawa-Carleton region generally fall within the range commonly found in school boards (Richards and Ratsoy, 1987). Variability does, however, exist. In 1988 at the elementary level, instruction as a per cent of total expenditure per-pupil ranged from 74% (OBE) to 58% (CRCSSB). Table 5 outlines instruction as a per cent of total per-pupil expenditure for the four boards in the Ottawa-Carleton region for the years from 1980 to 1988. Figure 3 illustrates the trend of these percentages.

5. Salaries

The preceding analysis confirms a commonly held view that the "instruction" function is the main cost driver in education. The functional category of instruction is primarily comprised of teachers' salaries. In fact, it is commonly argued that salaries and elements of working conditions are the main variables accounting for differences in per-pupil expenditures (Lawton, 1987).

a. What are the trends in salary differences?

Differences in average salaries are found among the four boards in the Ottawa Carleton region. For example, in 1988 the average salaries for elementary teachers in the Ottawa-Carleton school boards (in actual dollars), ranged from $44,507 in the Carleton Board of Education (CBE) to $40,786 in the Carleton Roman Catholic Separate School Board (CRCSSB). At the elementary level the CBE teachers have, from 1980 to 1988, consistently had the highest salaries of the four boards. By deflating actual teachers' salaries with the salaries component of the Ontario Education Price Index teachers' real salaries can be determined. When inflation is taken into account, however, teachers' salaries in all but the CRCSSB have actually decreased in the period from 1980 to 1988. Using 1981 dollars, for example, the average salaries of OBE elementary teachers dropped from $28,759 in 1980 to $27,603 in 1988. This suggests that teachers' wage settlements have not kept pace with inflation. Comparison of actual and constant or real average salaries indicates that Ottawa-Carleton teachers' salaries have decreased in real dollars during this period of time. Table 6 gives the average salary including the total compensation package in actual and real dollars for the four school boards in the region.

b. What trends in teacher qualifications and experience can be seen?

Average salaries of Ontario teachers are determined through collective bargaining, as are many elements of working conditions such as pupil-teacher ratios.

Table 5

Instruction as a Per Cent of Total Expenditure Per-Pupil for the Ottawa Board of Education (OBE); the Carleton Board of Education (CBE); the Carleton Roman Catholic Separate School Board (CRCSSB); and the Ottawa Roman Catholic Separate School Board (ORCSSB), 1980-1988

Instruction as a Per Cent of Total Expenditure Per-Pupil

YEAR	CBE	OBE	CRCSSB	ORCSSB
1980	64%	68%	58%	66%
1981	59%	67%	57%	65%
1982	64%	70%	62%	62%
1983	65%	72%	62%	66%
1984	67%	72%	63%	65%
1985	66%	71%	63%	64%
1986	67%	70%	65%	68%
1987	67%	73%	64%	71%
1987	71%	74%	58%	73%

Figure 3

Real Per-Pupil Instruction Expenditures as a Per Cent of Per-Pupil Total Expenditures, CBE, OBE, CRCSSB, ORCSSB, 1980-1988

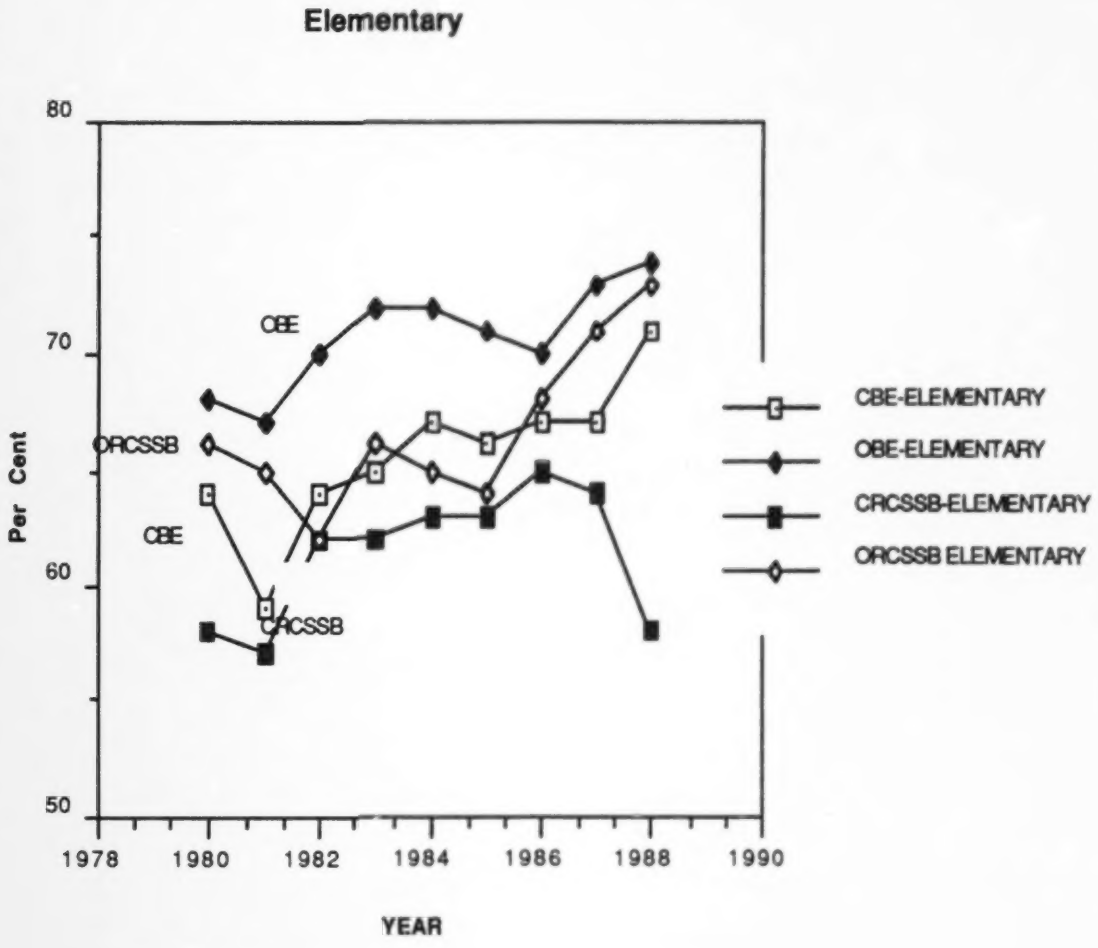


Table 6

Average Salary (Total Compensation) in Actual and Real Dollars for the Ottawa Board of Education (OBE); the Carleton Board of Education (CBE); the Carleton Roman Catholic Separate School Board (CRCSSB); and the Ottawa Roman Catholic Separate School Board (ORCSSB), 1980-1988

ACTUAL DOLLARS (ELEMENTARY LEVEL)				
YEAR	CBE	OBE	CRCSSB	ORCSSB
1980	26,979	26,056	23,143	25,291
1981	29,817	28,850	26,588	28,292
1982	32,864	31,196	30,289	31,889
1983	34,866	32,944	32,315	33,329
1984	37,167	34,942	34,654	36,178
1985	39,027	36,988	36,107	36,952
1986	40,625	38,594	37,604	37,562
1987	42,204	39,958	39,722	39,144
1988	44,507	42,343	40,786	42,530

REAL DOLLARS (ELEMENTARY LEVEL)				
YEAR	CBE	OBE	CRCSSB	ORCSSB
1980	29,778	28,759	25,544	27,915
1981	29,817	28,850	26,588	28,292
1982	29,317	27,829	27,020	28,447
1983	28,439	26,871	26,358	27,185
1984	29,344	27811	27148	27783
1986	29,143	27,686	26,976	26,945
1987	28,808	27,275	27,114	26,719
1988	29,014	27,603	26,588	27,725

Note: From Settlement Lists, 1980 to 1988, Education Relations Commission, Ontario.

Teachers in Ontario, like most throughout Canada, are remunerated according to a "grid" which provides for additional increments for both qualifications and experience. Variations in average salaries between the five school boards in the Ottawa Carleton region can, in part, be attributed to differences in qualifications and experience.

Teachers' Qualifications. In 1984 on average 79% of elementary teachers in Canada held a bachelor's or higher degree, as did 93% of all secondary teachers (Education in Canada, 1984, Table 36) In the maritime provinces, where average salaries are lower, 74% of elementary teachers and 90% of secondary teachers held such degrees. In contrast, in the western provinces, where average salaries are generally higher, the respective averages are 82% and 94% on average (Education in Canada, 1984,Table 37). In Ontario during the period from 1976-1977 approximately 56% of elementary teachers and 20% of secondary teachers had no degree (Statistics Canada, 1977). By 1980-81 these figures dropped to 37% for elementary teachers and 14% for secondary teachers (Statistics Canada, 1982). These figures suggest that even without negotiated increases average teachers' salaries would have increased.

In the Ottawa-Carleton region very minor differences exist in level of qualifications of teachers between boards. In the elementary panel, for example, in the year 1987-1988 Carleton Board of Education (CBE) teachers had an average of 5.37 years of training compared to the 5.17 years held on average by Ottawa Board of Education (OBE) teachers, who trailed all three other boards in average number of years of training. In 1988 the Carleton Roman Catholic Separate School Board (CRCSSB) led the other boards in the level of qualifications of its teachers (5.6 years). This is noteworthy because in 1980 CRCSSB teachers had the lowest level of qualifications, on average, of all the four boards in the region. The increase from that level of 4.31 years to 5.6 years of qualification, an increase of over a year, is similar to the trend seen in the other boards. This trend suggests that over the eight years from 1980 to 1988 either Ottawa-Carleton teachers in the elementary panel have increased their qualifications, or teachers with higher qualifications have been hired by the boards. This trend confirms Atherton's (1983) finding of increasing levels of qualifications by Ontario teachers particularly at the elementary panel. Table 7a provides the average qualification and rank of teachers in the Ottawa-Carleton boards from 1980 to 1988. Figure 4a illustrates the trends in average qualifications for the four boards.

Teachers' Experience. Built in to teachers' salary grids are increases in salaries resulting from increasing years of experience. While the levels of these increases are negotiated, the concept of a grid ensures that up to a maximum level teachers are guaranteed automatic increases in salary through years of service. The impact on per-pupil expenditures can be varied. For example, older districts where teachers may have many years of experience may face higher costs per-pupil for instruction.

Table 7

Average Qualification (years) and Experience Ranked of Teachers in the Ottawa Board of Education (OBE); the Carleton Board of Education (CBE); the Carleton Roman Catholic Separate School Board (CRCSSB); and the Ottawa Roman Catholic Separate School Board (ORCSSB), 1980-1988

7a AVERAGE QUALIFICATION (YEARS) (ELEMENTARY)

	CBE		OBE		CRCSSB		ORCSSB	
	Years	Rank	Years	Rank	Years	Rank	Years	Rank
1979-1980	4.66	18	4.58	26	4.31	24	4.38	20
1980-1981	4.82	15	4.68	28	4.44	25	4.56	20
1981-1982	4.93	15	4.75	33	4.56	25	4.63	23
1982-1983	5.02	25	4.82	39	4.75	26	4.63	28
1983-1984	5.14	23	4.92	49	4.85	26	4.78	28
1984-1985	5.25	25	5.0	51	5.02	24	4.91	27
1985-1986	5.34	21	5.08	50	5.30	16	5.09	27
1986-1987	5.36	27	5.11	53	5.43	20	5.16	30
1987-1988	5.37	34	5.17	56	5.60	18	5.34	32

7b AVERAGE YEARS OF EXPERIENCE (ELEMENTARY)

	CBE		OBE		CRCSSB		ORCSSB	
	Years	Rank	Years	Rank	Years	Rank	Years	Rank
1979-1980	10.02	43	10.94	24	7.78	43	12.01	2
1980-1981	10.72	35	11.27	24	9.45	34	12.71	1
1981-1982	11.04	39	11.67	22	10.49	25	13.22	2
1982-1983	11.39	39	11.79	27	10.71	30	13.71	1
1983-1984	11.64	42	11.89	35	11.01	29	12.64	8
1984-1985	12.26	33	12.12	38	11.25	28	13.05	4
1985-1986	12.2	41	12.4	32	10.43	37	11.75	24
1986-1987	12.02	41	12.07	39	10.25	39	10.97	32
1987-1988	11.72	48	11.43	54	10.25	44	10.46	41

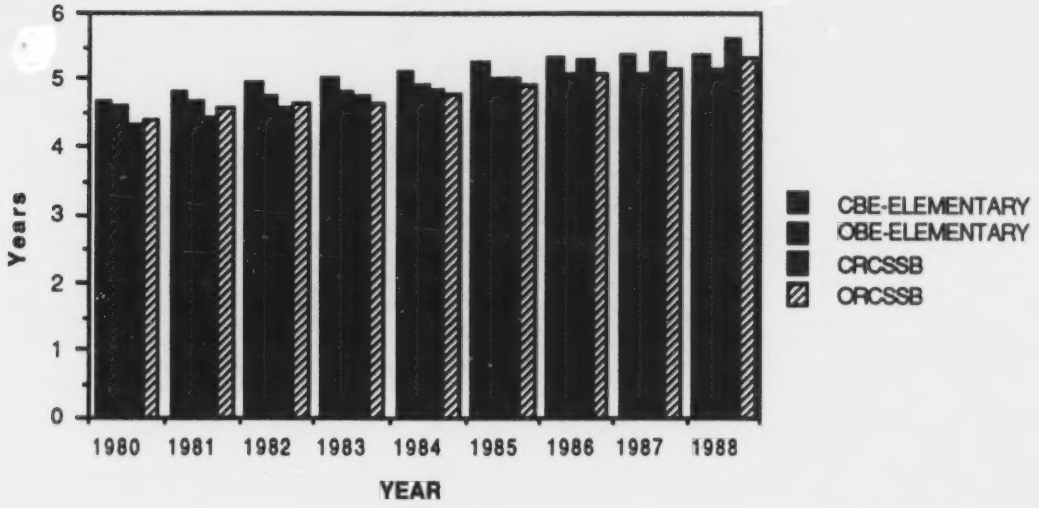
Note: From Total Enrolment and Staff, and Average Age and Experience 1980-1988. Education Relations Commission, Toronto,

Figure 4

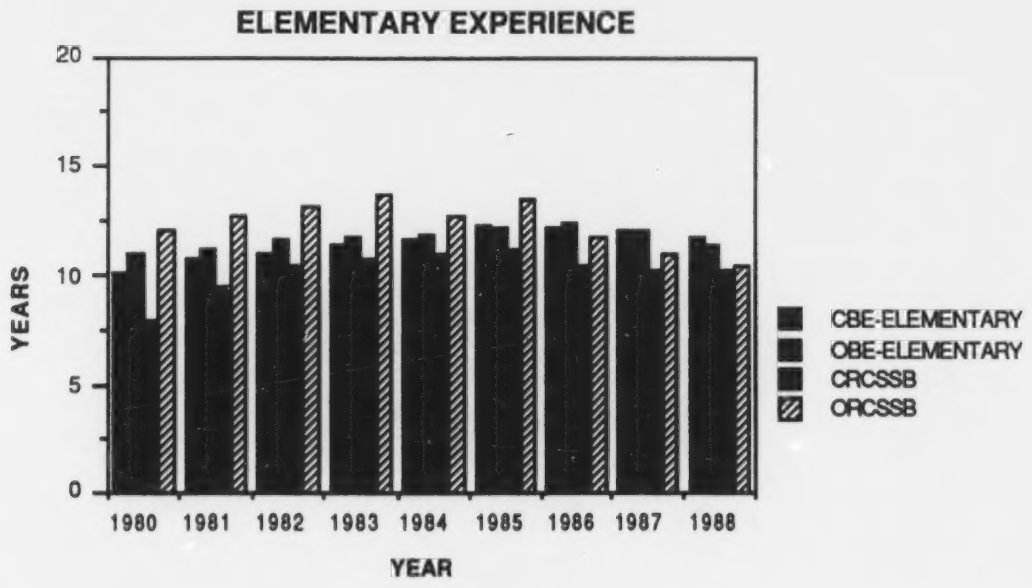
Average Qualifications of the CBE, OBE,CRCSSB, and ORCSSB teachers, 1979-80 to 1987-88

4 a

Elementary CBE, OBE and CRCSSB, and ORCSSB



4b. Average Experience for CBE, OBE, CRCSSB, and ORCSSB teachers, 1979-80 to 1987-88



Newer, or expanding school boards may have a larger number of beginning teachers with the resulting lower costs per-pupil of providing instructional services.

Another factor effecting the level of qualifications and experience and consequently the impact of teachers' salaries on school board expenditures arises as the result of declining enrolments. Traditionally the entry of new teachers into a system serves to depress the average salary for all teachers. The declining enrolments reduce the demand for new teachers and consequently can have the effect of restructuring the salary structure with a larger of portion of teachers receiving maximum salaries.

In Ottawa-Carleton school boards, as is the case in other regions, trends in average years of teacher experience has been influenced by Ministry of Education incentives for early retirement in 1987 and 1988. There are some differences in trends in teacher experience in the four boards in the Ottawa-Carleton region. It appears that at the elementary level in all four boards average levels of teacher experience increased until the 1986-1987 school year. All four boards experienced decreases in the average level of elementary teacher experience in 1988. The Carleton Board of Education, with an average of 11.7 leads the other four boards in level of teacher experience for 1988, followed by the Ottawa Board of Education (OBE) with an average of 11.4 years of teacher experience. The Carleton Roman Catholic Separate School Board (CRCSSB) trails the other four boards with on average 10.25 years of experience per teacher. Table 7b provides the average years of experience and rank of teachers in the Ottawa-Carleton boards from 1980 to 1988. Figure 4 b illustrates the trends in average experience for the four boards.

4. Working Conditions

Another component of instructional expenditures has been termed the "working conditions" of teachers. One of the components of working conditions, the pupil-teacher ratio, which although not directly tied to salaries, has an important impact of per-pupil educational expenditures. In addition, trends in the numbers of students and pupil-teacher ratios (PTR) are of interest in analyses of changes in the quality or quantity of educational services made available. Changes in the numbers of students indicate changes in demand for education, and changes in pupil-teacher ratios suggest changes in the quality of the educational services offered (Lawton, 1987, p. 103).

a. How do trends in pupil-teacher ratios relate to trends in per-pupil expenditures?

In Canada overall student enrolment declined about 1% between 1982 and 1985. During the same period of time pupil-teacher ratios declined about 0.5%. At the same time, between 1979 and 1983 total school board expenditures in Canada increased from $12 billion to $18 billion in current dollars, or from $5.9 billion to $6 billion in constant 1971 dollars. This is a 2% increase (using the Education Price Index with 1971 as base year), which reflects a per-pupil increase from $2, 640 to $3, 973 in current dollars, or from $1, 203 to $1,322 in constant, 1971 dollars (Financial Statistics of Canada, 1982-83, Table

10). Comparison of the expenditure statistics and the trends in enrolments and pupil-teacher ratios, suggests that the increased costs of education during this period are not the result of increased demand for education, but may indicate some increase in the quality of education due to the decrease in pupil-teacher ratio (Lawton, 1987, p. 103).

The pupil-teacher ratio is generally used in assessing the resource allocation in education. It is derived by dividing the total number of students by the total number of certificated teaching personnel. A pupil-teacher ratio, therefore, includes those in non-teaching capacities, full or part time such as principals, vice-principals, department heads and consultants. In contrast, class size reflects the number of students actually receiving instruction by teachers. It can be argued that class size would be a better measure of any relationship that might exist between quality of education and the allocation of resources. Despite this from the viewpoint of the costs of education examination of pupil-teacher ratios is useful.

There are significant differences in trends in pupil-teacher-ratios of the four boards in the Ottawa-Carleton region. At the elementary level the general trend is toward lower pupil-teacher ratios in all the boards. However, in 1988 pupil-teacher ratios in the OBE were substantially lower than in the other boards, a trend visible from 1979. In fact, in 1987 the OBE's elementary pupil-teacher ratio was the lowest in the province. The CBE displayed a gradual decrease in pupil-teacher ratio at the elementary level from 1979 to 1988. Pupil-teacher ratios in the CRCSSB displayed a pattern of increase followed by decrease in these ratios. Overall the CBE, the CRCSSB, and the ORCSSB cluster around an elementary pupil-teacher ratio of about 16.5, in contrast to the much lower ratio of 13.5 in the OBE. Table 8 illustrates these trends.

Comparisons of Pupil-Teacher Ratios and Per-Pupil Expenditures Pupil-teacher ratios have a major impact on instructional expenditures. Lower pupil-teacher ratios mean that school boards must pay more teachers. If the salaries of these teachers rise as the result of increasing qualifications and experience the impact of lower pupil-teacher ratios is compounded. This may occur in older boards, facing declining enrolments, who employ many experienced and qualified teachers. In the case of boards facing increasing enrolments, hiring new teachers with less experience, and perhaps lower qualifications can result in higher pupil-teacher ratios being translated through less expensive "salary costs" into lower per-pupil expenditures.

Analysis of the trends in per-pupil expenditures for instruction and pupil-teacher ratios of the four boards confirms the general assumption that decreases in pupil-teacher ratios are accompanied by increases in per-pupil instruction expenditures. In the case of both the Carleton Board of Education and the Ottawa Board of Education consistent decreases in pupil-teacher ratios, in both elementary and secondary panels, from 1979 to 1988 are accompanied by consistent increases in per-pupil instruction expenditures. Figure 5a illustrates these trends. Comparison of the two separate boards revels similar patterns of increasing per-pupil instruction costs. The trends in pupil-teacher ratios for these boards are similar to each other, displaying both increases and decreases in these ratios.

Table 8

School Pupil-Teacher Ratios (PTR) and Ranks (R), for the Ottawa Board of Education (OBE); the Carleton Board of Education (CBE); the Carleton Roman Catholic Separate School Board (CRCSSB); and the Ottawa Roman Catholic Separate School Board (ORCSSB), 1979-1988

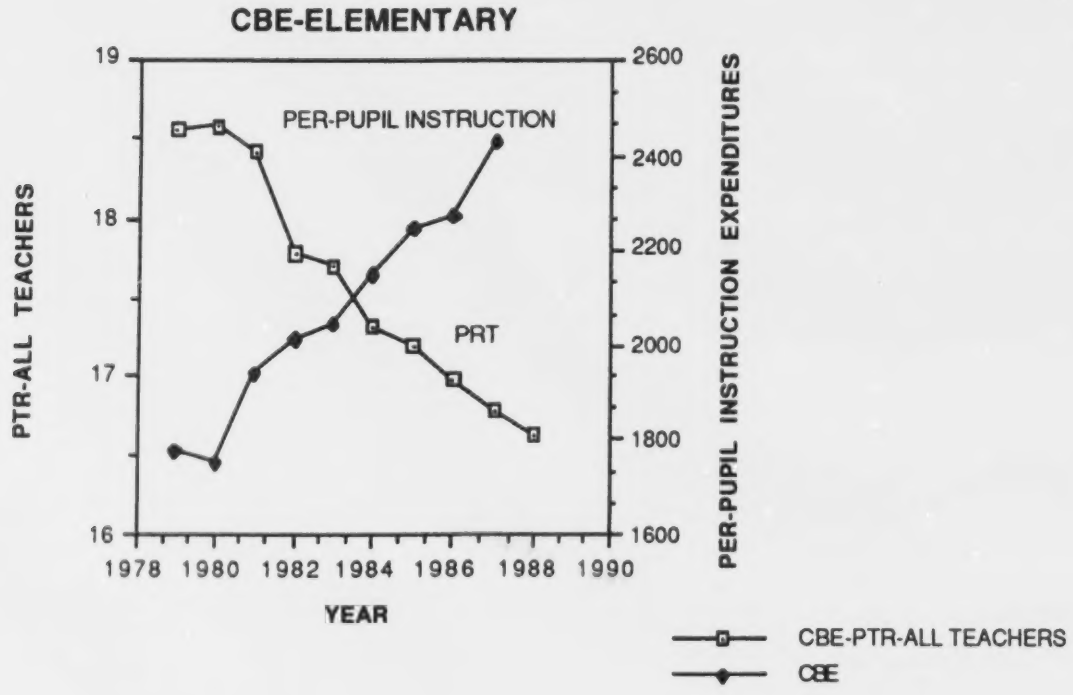
ELEMENTARY

YEAR	CBE		OBE		CRCSSB		ORCSSB	
	PTR	R	PTR	R	PTR	R	PTR	R
1979	18.97	32	16.96	4	18.9	21	17.92	11
1980	19.04	37	16.74	6	19.05	26	18.56	19
1981	18.83	42	16.77	9	18.54	21	18.83	28
1982	18.3	35	16.08	7	18.31	19	18.48	21
1983	18.26	40	15.87	7	18.51	24	17.87	15
1984	17.87	36	15.57	5	18.27	22	18.61	27
1985	17.73	39	14.83	3	18.71	23	18.75	26
1986	17.52	41	14.78	2	18.76	29	17.67	15
1987	17.3	40	14.24	1	18.33	29	17.38	13
1988	17.07	49	14.25	7	17.14	19	17.02	18

Note: From. Pupil-Teacher Ratio History, 1980-1988 Education Relations Commission. Toronto.

Figure 5a

Comparison of Pupil-Teacher Ratios and Per-Pupil Expenditures, CBE, OBE, 1980-1988



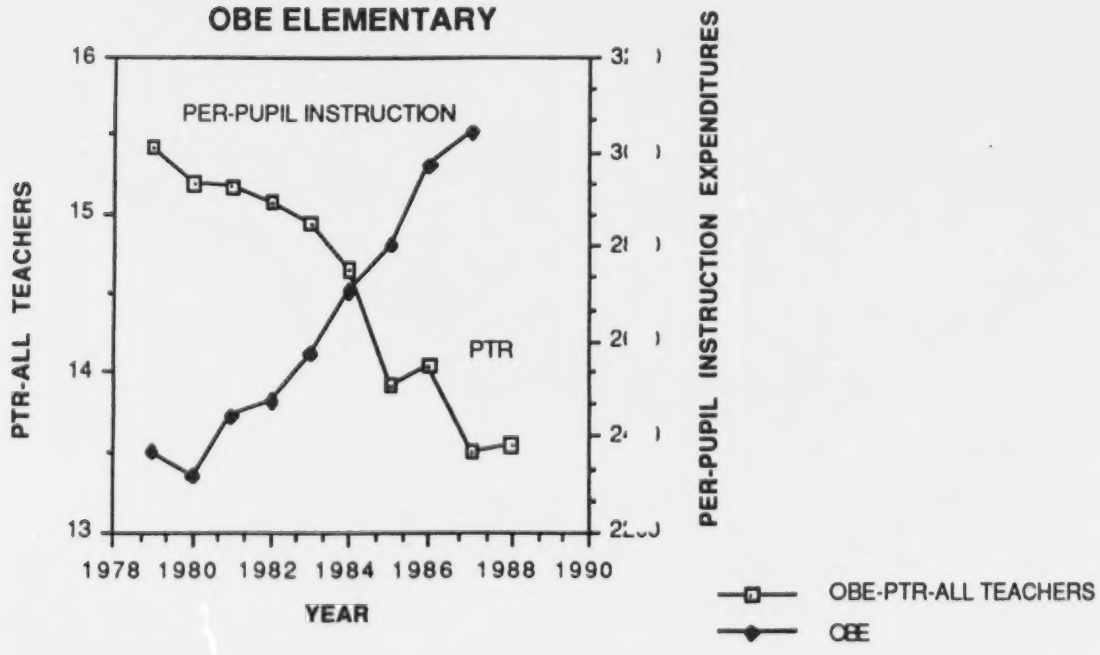
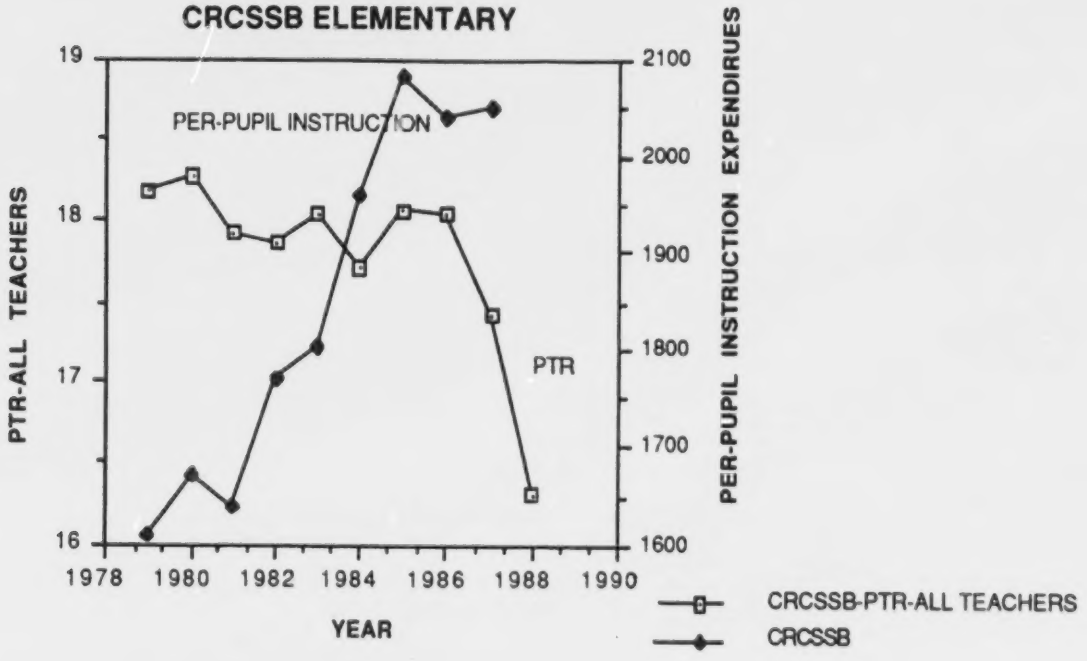
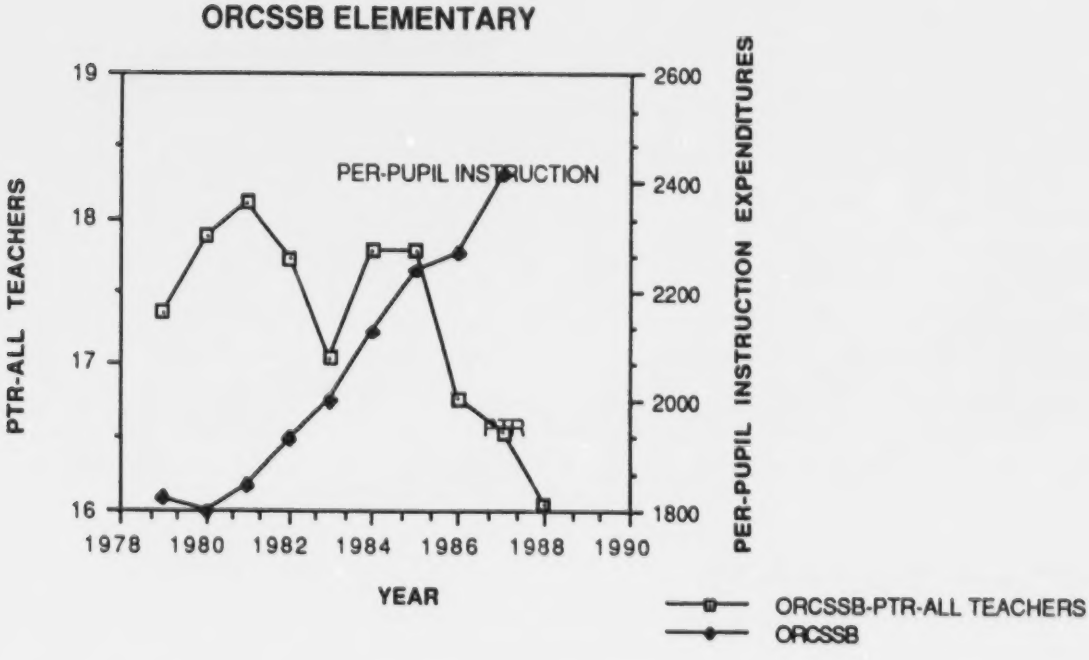


Figure 5b

Pupil-Teacher Ratios and Per-Pupil Instruction Expenditures in the Elementary Panels of the CRCSSB, and ORCSSB 1980-1988





These variable trends contrast to the consistent decline in pupil-teacher ratios demonstrated in the public boards. Further research should investigate possible causes in these variations. Figure 5 b illustrates the trends in pupil-teacher ratios and per-pupil instruction expenditures in the elementary panels of the Carleton Roman Catholic Separate School Board and the Ottawa Roman Catholic Separate School Board.

C. Why do the expenditures vary from board to board and from year to year?

Variations in the expenditures of school boards are related to trends in enrolment, funding provided by the grant plan, and by the assessment base of the school board. Each of these factors will be considered next.

5. Enrolments

a. Is there a visible trend in increasing elementary enrolments reflecting the baby boom echo?

In Ontario as a whole elementary enrolments declined until 1986 when a small increase occurred. It is projected that the increase will continue until the end of the century. Enrolments in secondary schools declined from 1980 to 1987. These patterns confirm Lawton's (1989) argument that a baby boom echo is increasing elementary enrolments. Figure 6 illustrates the changes in student enrolments in elementary and secondary schools.

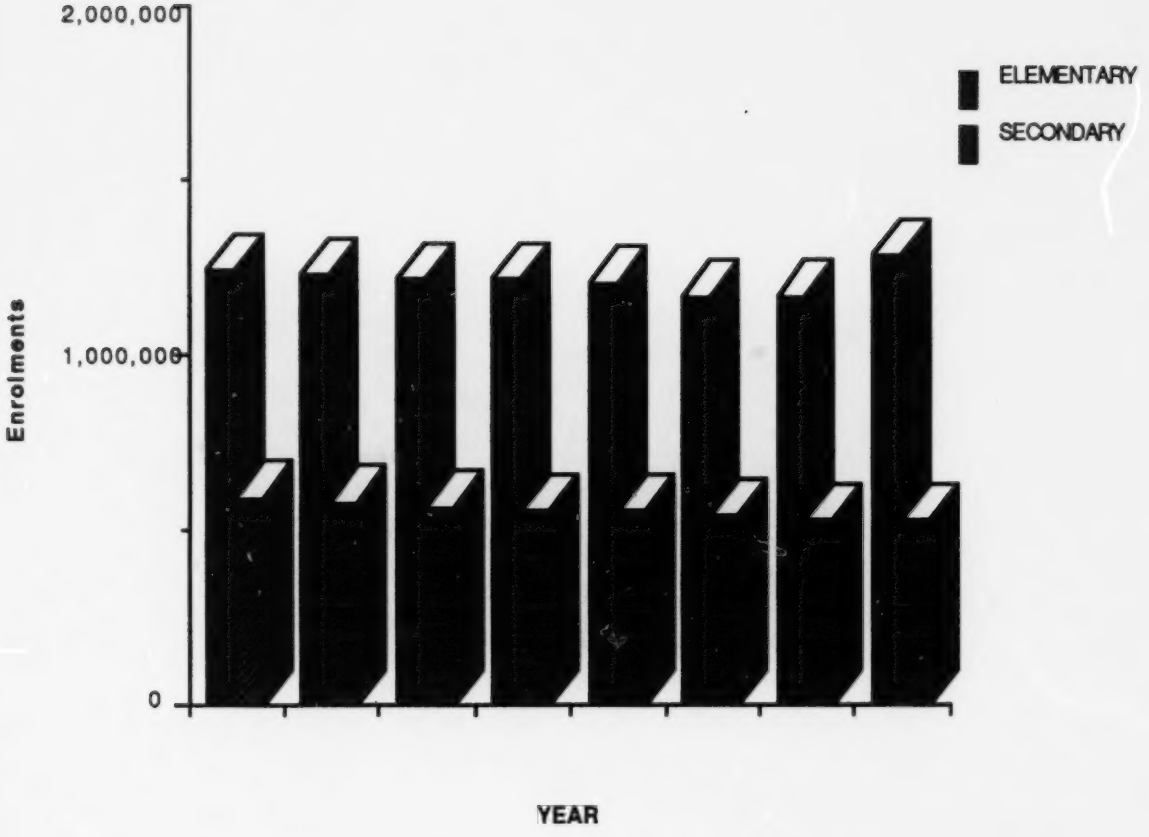
Student enrolments in the Regional Municipality of Ottawa-Carleton (RMOC) from 1980 to 1987 have shown a pattern similar to that of the province with some variations. Total enrolments in the RMOC declined from about 111,633 in 1980 to 107,964 in 1984 after which enrolments increased slightly. The average annual rate of change in enrolments in the RMOC school boards from 1981 to 1987 was 0.24% indicating the impact of the increasing enrolments at the end of this period of time.

b. Can a shift in enrolments from urban to suburban schools, and from public to separate schools be identified?

Two shifts in are visible in the enrolment patterns of the four boards in the Ottawa-Carleton region. One of these shifts most likely arose as a result of the extension of full funding to the separate schools of Ontario. The impact can be seen when total enrolments in the RMOC are categorized as public school enrolments or as separate school enrolments. Using this classification public school enrolments declined from 77,928 in 1980 to 73,207 in 1985 after which enrolments increased slightly. However, during the years from 1981 to 1987 public school enrolments decreased at an average annual rate of 0.57%. Separate school enrolments also declined from 33,705 in 1980 to 33,531 in 1981 but increased sharply during the years following. This resulted in an average annual increase of almost 2% for this period.

Figure 6

Ontario Elementary and Secondary Enrollments, 1980-1987



The shift in public school enrolments to the separate system is shown in their changing proportions of the total enrolment of the Regional Municipality of Ottawa-Carleton. In 1980 separate schools enrolled 30.19% of the total enrolments in the RMOC compared to the 69.81% enrolled by public schools. By 1988 these proportions had changed to 34.03% and 65.97% respectively, an increase of almost 4% for the separate system. Figure 7a illustrates these changing proportions.

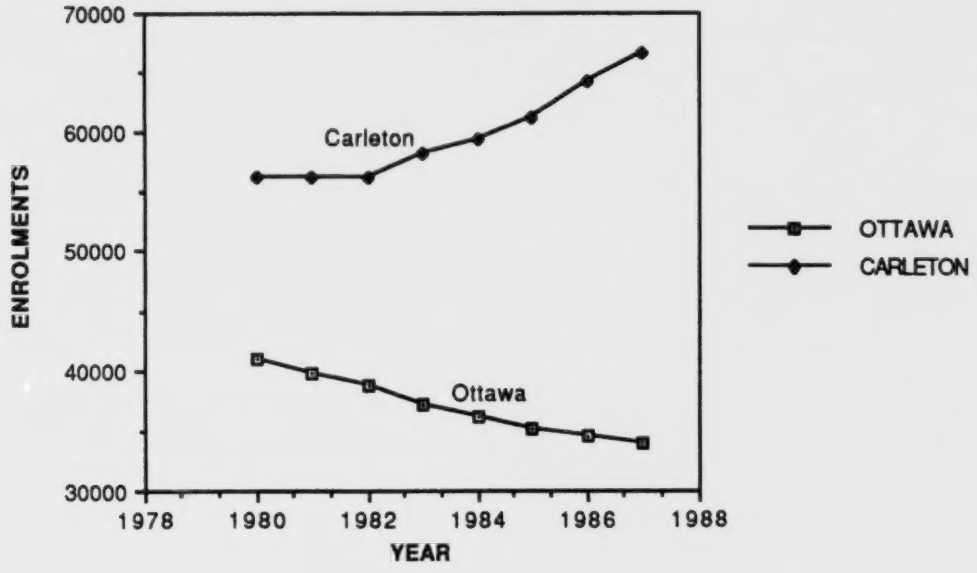
Another pattern of shifting enrolments has emerged in the Ottawa-Carleton region. As is the case in many regions, the school boards drawing from urban centers have experienced a decline in enrolment, while the enrolments of boards drawing from suburban areas have increased as young families settle in those areas. The shift in population from the older municipalities of Ottawa, Vanier and Rockcliff to the surrounding suburban municipalities has had a significant impact on the school boards in the region. This shift can be seen by classifying the student enrolment data from 1980 to 1988 as either Ottawa or Carleton.

Using this approach, the total enrolments of both the Ottawa Board of Education and the Ottawa Roman Catholic Separate School Board are grouped as "Ottawa" and the enrolments of the Carleton Board of Education and the Carleton Roman Catholic Separate School Board are grouped as "Carleton". In 1981 39,846 students were enrolled in Ottawa schools compared to 56,226 in Carleton schools. These enrolments represented a decrease of 3.0 % from 1980 for the Ottawa schools and a slight increase of 0.05% for Carleton schools. By 1987 student enrolments in Ottawa schools had declined to 33, 942, an average annual decrease of 2.7%, while Carleton schools had increased to a total enrolment of 66,638 which represents a comparable average annual increase of 2.5%. The change in school enrolments as a result of this population shift can be seen in the changing proportions of the total enrolment of the Regional Municipality of Ottawa-Carleton. In 1980 Ottawa area schools enrolled 42.2% of the total enrolments in the RMOC compared to the 57.8% enrolled by Carleton area schools. By 1988 these proportions had changed to 33.8% and 66.3% respectively, a decrease of 8.4% for Ottawa area schools.

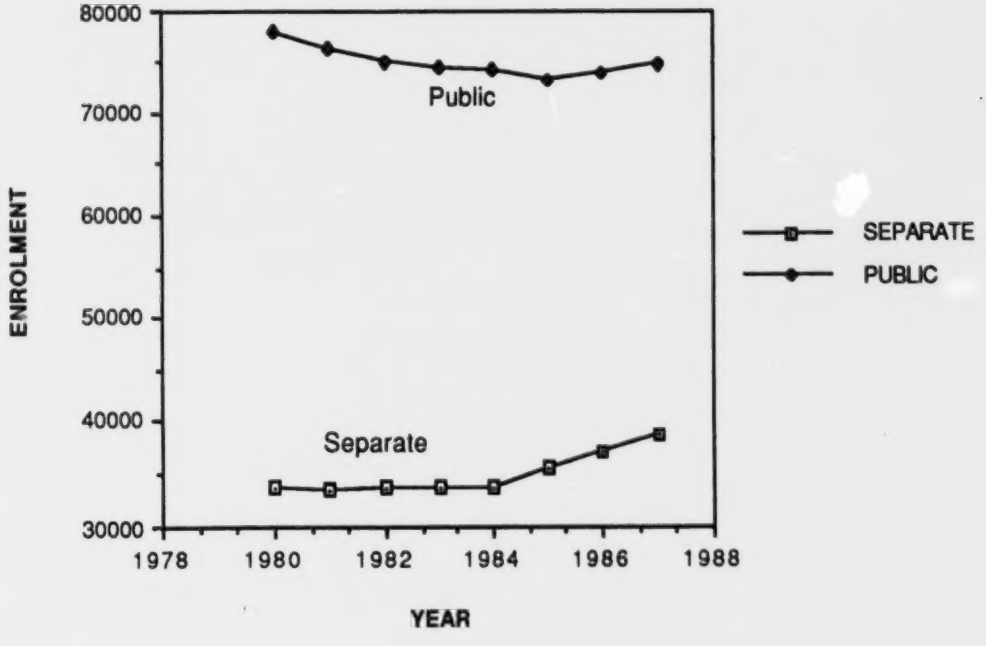
It would appear that the shift in population from the urban to suburban centers had a greater impact on the enrolments of school boards in the Ottawa-Carleton region, although the extension of full funding to separate schools also had an impact. Figure 7b illustrates both impacts. These figures indicate that as Carleton area schools' enrolments increased Ottawa area schools' enrolments decreased. The pattern of change is different when the enrolments are classified as separate and public. In this case public school enrolments decline and separate school enrolments maintain relative stability until 1985. In the following years both public and separate enrolments have increased.

Figure 7

7a. Ottawa and Carleton Enrolments, 1980-1987



7b. Separate and Public Enrolments, 1980-1987



6. Grant Plan

Variations in school board expenditures are also related to the funding provisions of the grant plan adopted by the province.

a. What trends in per-pupil grant ceilings are indicated?

There are a number of problems with the Ontario grant structure. One of these problems is related to the adequacy of the foundation or ceiling level of expenditures. Assessing this problem is difficult in Ontario, which lacks a systematic basis for providing program cost analysis such as is available in New Brunswick. In addition, since each board negotiates salaries and benefits with at least two teachers' unions, the variability of educational costs arising from the variety of salary schedules along with unanticipated changes in pupil-teacher ratios and teachers qualifications, make assessment of the adequacy of the ceiling level difficult. While a large number of school boards currently spend above the ceiling level, this spending cannot be seen to reflect the inadequacy of the ceiling, but rather reflects the local preferences for and capacity to provide educational services. The effect of the weighting factors also make realistic assessment of ceiling adequacy difficult. Weighting factors have the effect of providing a different ceiling for each board (Atherton, 1985, p.116). Figure 8 illustrates the trends in grant ceilings.

The differences between board grant ceilings arise as the result of differences in weights applied to the calculations of the ceilings. Grant ceilings are calculated by first calculating the board's maximum recognized ordinary expenditure, which is equal to the product of the grant ceiling and weighted pupil enrolment. (Lawton, 1987, p. 53). In the case of the boards in the Ottawa-Carleton region, grant ceilings for the Ottawa Board of Education have tended to be higher than for the other boards. However, from 1983 to 1988 these ceiling have risen for all four boards.

In 1988 actual dollars, the maximum amount of ordinary expenditures towards which grants were paid at the elementary level were $2,953.79 for the ORCSSB; $2,945.04 for the OBE; $2,902.12 for the CBE; and $ 2,817.25 for the CRCSSB.

b. Can a trend in transferring responsibility for educational expenditures from the provincial to the local level be detected?

A second problem with the Ontario grant plan concerns the adequacy of year to year adjustments. Although there has been an actual dollar increase in the amount of provincial support through grants, when these actual grants are deflated by the Education Price Index, grants in constant (1981) dollars, have declined slightly from $2,489,565,000 in 1980 to $2,455,301,000 in 1987. Table 9a gives the actual and real dollar support through grants provided by the Ontario government (1980 - 1986). Figure 9 illustrates the relationship between actual and constant dollar support for total educational expenditures by the Ontario government.

Figure 8

Grant Ceilings in the CBE, OBE, CRCSSB, ORCSSB, 1983-1988

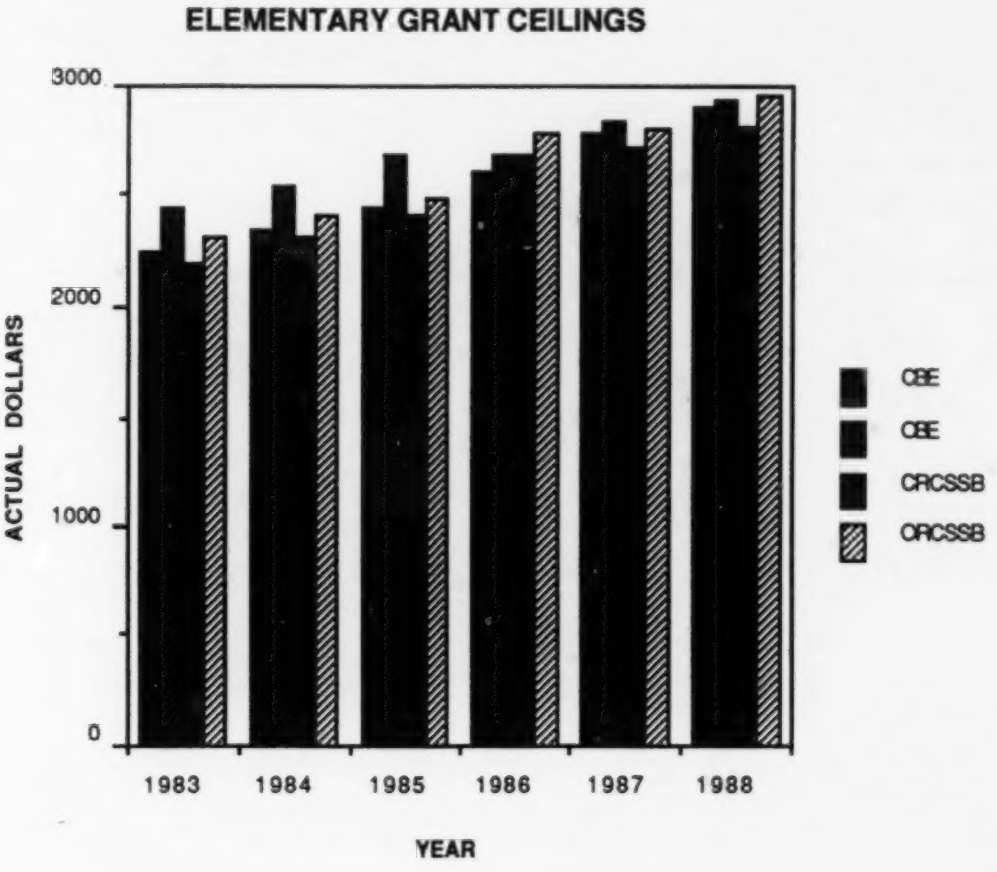


Table 9

9a. Current and Constant Dollar General Legislative Grants for Education Provided by the Ontario Government, 1980-1987.

GENERAL LEGISLATIVE GRANTS (in thousands of dollars)		
YEAR	CURRENT DOLLAR	CONSTANT DOLLAR
1980	2,230,650	2,489,565
1981	2,486,147	2,486,147
1982	2,741,656	2,443,544
1983	2,919,903	2,391,403
1984	3,031,539	2,370,242
1985	3,168,757	2,384,317
1986	3,312,628	2,390,063
1987	3,577,374	2,455,301

9b. Percentage of Total School Board Expenditures Supported by General Legislative Grants, 1980- 1987

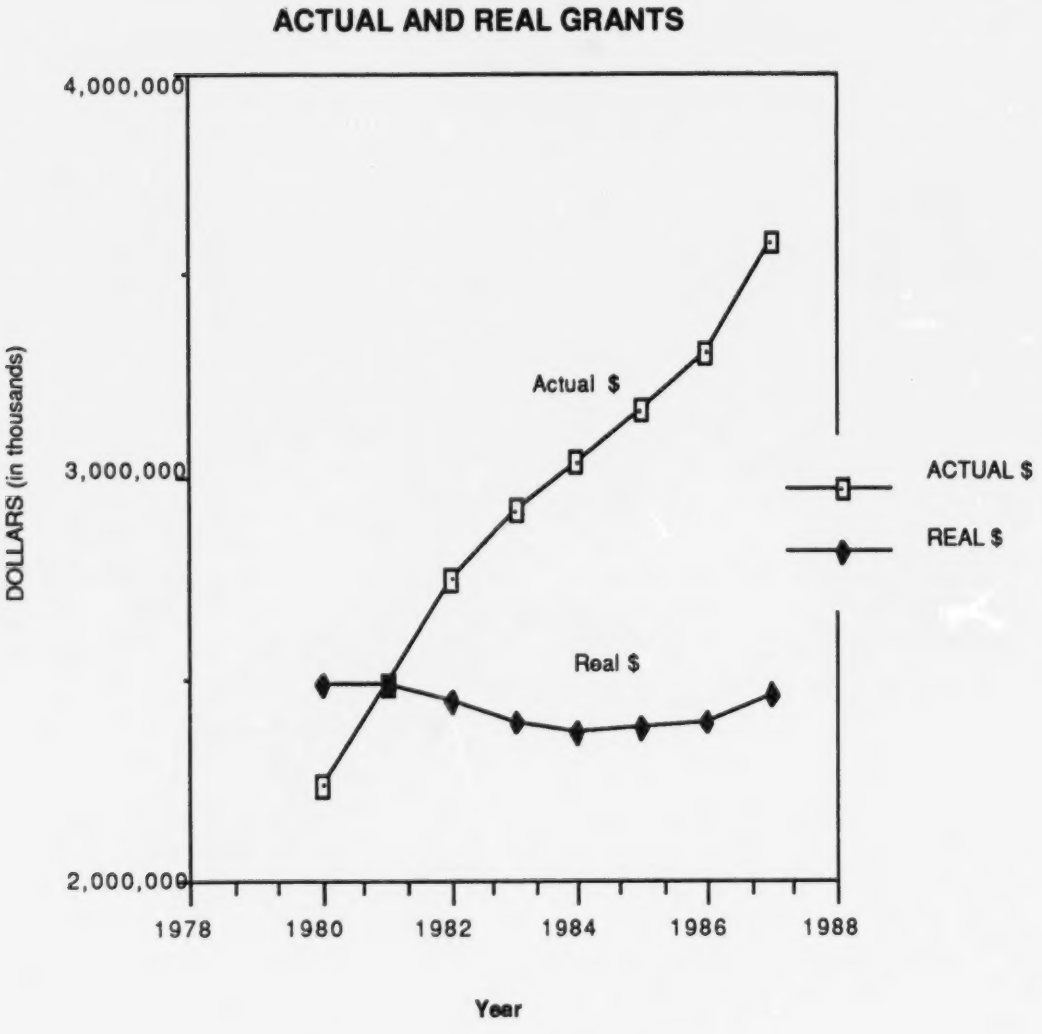
	ELEMENTARY		SECONDARY		TOTAL
	Public	Separate	Public	Separate[1]	
1980	43.19	81.03	46.75	___	52.05%
1981	43.12	80.71	46.18	___	51.87%
1982	41.32	80.62	44.32	___	50.50%
1983	39.96	80.87	41.98	___	49.38%
1984	38.65	79.20	40.12	___	47.78%
1985	37.86	78.02	37.71	___	46.62%
1986	36.19	79.03	35.35	___	45.62%
1987	35.24	73.64	36.64	66.02	44.92%

Note: From. Education Statistics, Ontario, p. 184, Ministry of Education, 1987.

[1] Data on the expenditures of Roman Catholic secondary schools, which now receive full public funding, are shown under the separate school column for the first time in 1987; data on their operations for previous years have been included in the separate elementary school column.

Figure 9

Comparison of Ontario Ministry of Education Grants in Actual and Real Dollars, 1980-1987



When examined as a proportion of total school board expenditures, the provincial contribution to school board expenditures has been declining. Table 9b shows the proportion of the total school board expenditures supported by General Legislative Grants in Ontario from 1980-1986. Figure 10a and 10b illustrate these proportions.

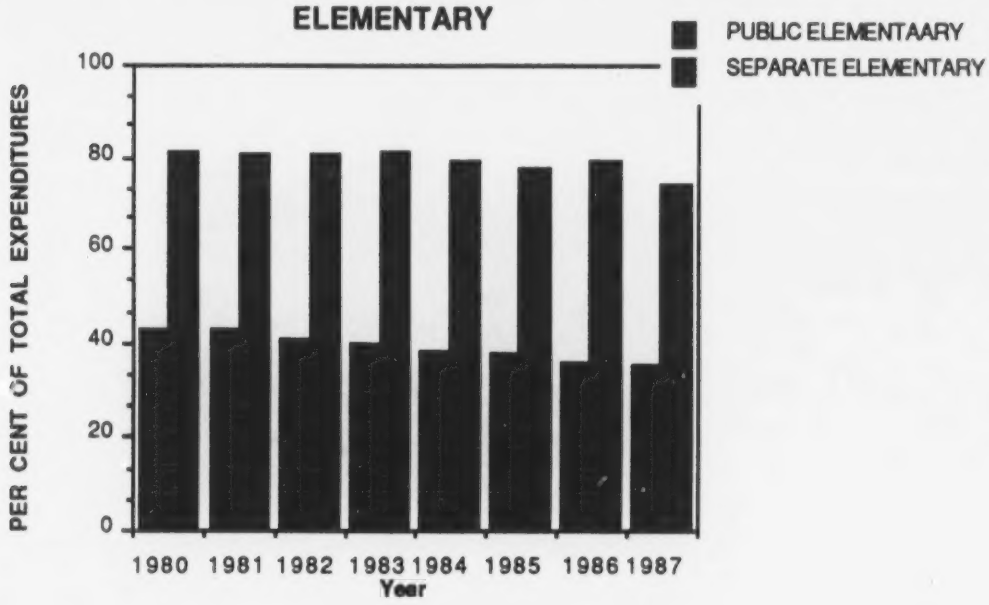
These figures can be interpreted in conflicting ways. On the one hand some may charge, based on the declining level of support, that the province is not fulfilling its responsibility. Others may argue, based on the increasing dollar support by the province, that the school boards are overspending. As a result of this overspending some charge that educational costs are increasing yearly beyond the level of provincial support (Atherton, 1985, p. 117). Comparison of the total expenditures of Ontario boards, in constant dollars with the total government grants, in constant dollars, confirms the trend of increasing school board expenditures. However, while it appears government grants are increasing in actual dollars, when inflation is taken into account these grants have been decreasing. Figure 11 illustrates these trends.

Atherton (1985) suggests that analysis of this data is made difficult because it is highly aggregated. When the data is de-aggregated it indicates, for example, that from 1974 to 1983 grants to separate schools increased just over 200%. And a further analysis finds that approximately 41% of the dollar increase in provincial grants was allocated to separate elementary schools who enrol only about 25% of the student population. However, this does not mean that separate elementary schools were overcompensated. Not only was there an increase in enrolment in the separate elementary schools, but separate school in Ontario have been excluded from the non residential property tax base. As a result, a proportionally higher degree of financial equalization must be provided by the provincial government to deal with any growth in the separate system. Thus, increases in costs associated with increased enrolments and price levels in poor boards will be borne by the provincial government, while in rich boards these increases may be borne entirely by the local taxpayer. (Atherton, 1985, p.118).

In the Ottawa-Carleton region differences between boards in the per cent rate of grant on recognized ordinary expenditures are examples of this phenomenon. In 1988, at the elementary level the per cent rate of grant on recognized ordinary expenditures for the Ottawa Board of Education was -4.17%, reflecting that board's rich assessment base. At the other end of the scale, the per cent rate of grant on the Carleton Roman Catholic Separate School Board's ROE was 80.46%. The Carleton Board of Education and the Ottawa Roman Catholic Separate School Board were both in the range of 50 per cent rates at both the elementary and secondary levels. Table 10 indicates the per cent rate of grant on ROE for the four boards in the region.

Figure 10

10a. Ontario Ministry of Education Grants as a Per Cent of Total School Board Expenditures, 1980-1987



10b. Total Ontario Ministry of Education Grants as a Per Cent of Total Expenditures,1980-1987

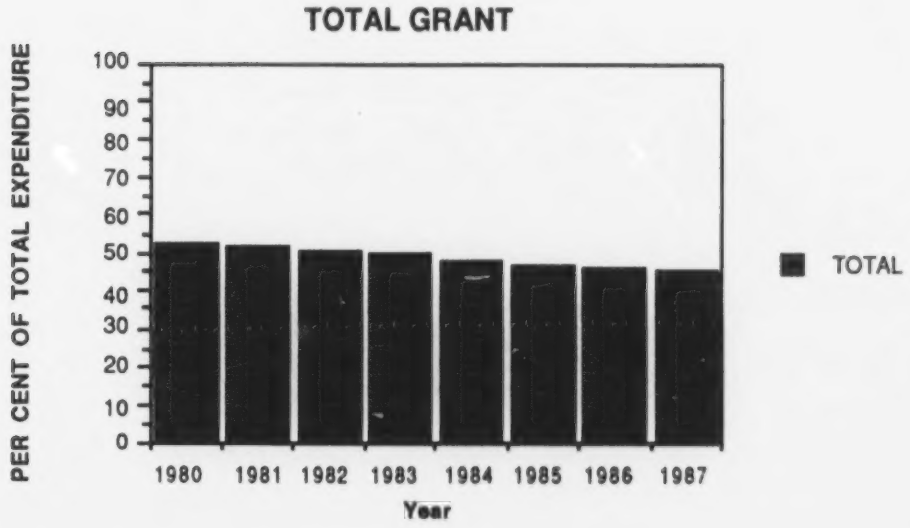


Figure 11

Comparison of Total Expenditures of Ontario School Boards (Real $) with Ontario Government Grants (Real $), 1980-1988

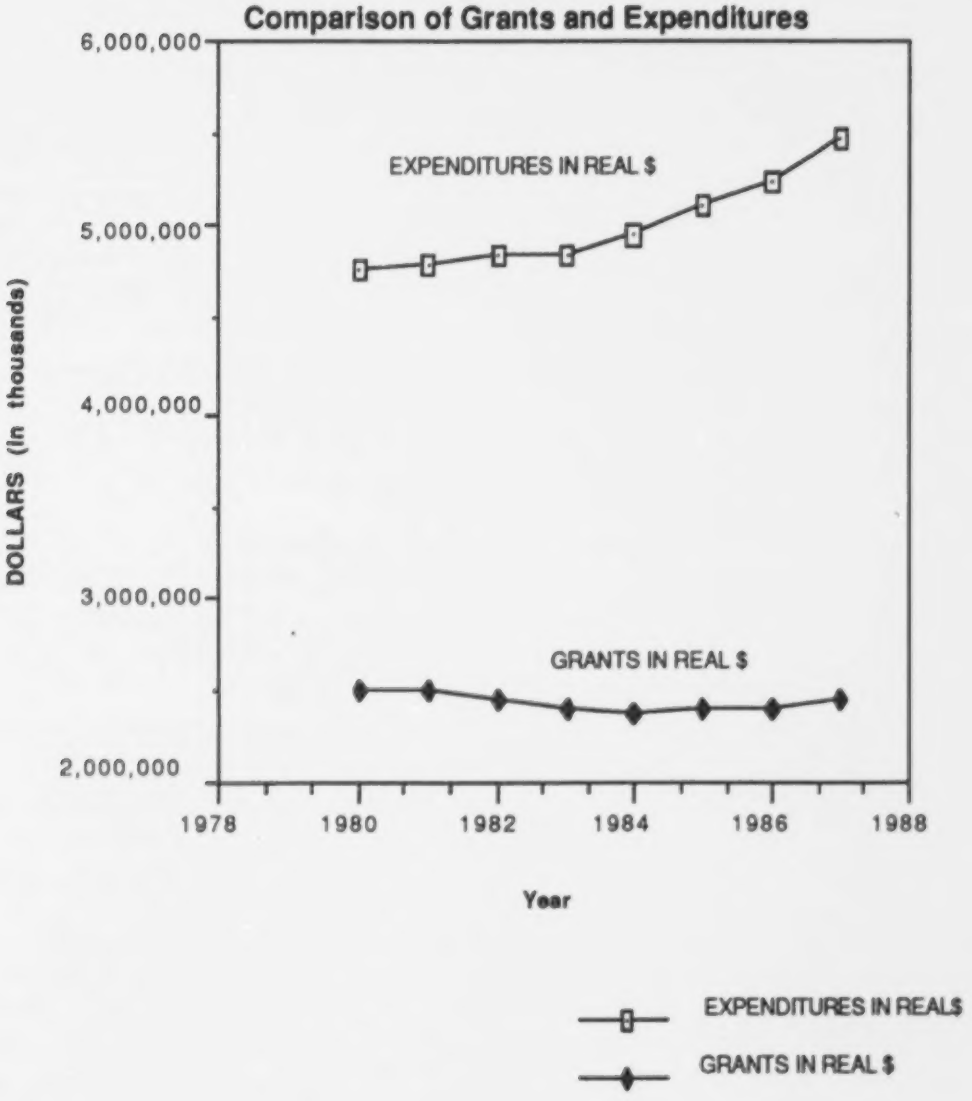


Table 10

Per Cent Rate of Grant on Recognized Ordinary Expenditures for the Ottawa Board of Education (OBE); the Carleton Board of Education (CBE); the Carleton Roman Catholic Separate School Board (CRCSSB); and the Ottawa Roman Catholic Separate School Board (ORCSSB), 1983-1988

ELEMENTARY

YEAR	CBE	OBE	CRCSSB	ORCSSB
1983	60.32	7.22	83.18	67.61
1984	59.26	4.24	83.12	65.08
1985	57.92	1.39	83.69	63.68
1986	58.43	0.95	84.86	65.74
1987	57.96	-1.38	80.89	57.09
1988	55.49	-4.17	80.46	55.61

Note: From Survey of School Board Financial Statements, 1983-1988. Ontario Ministry of Education.

The problems associated with foundation plans, such as that used by Ontario, have been noted in a number of studies. The Ontario Committee on Taxation (1976), the Mayo Commission (1976) ; the Jackson Report (1976) and the Macdonald Commission (1985) have all suggested that the existing system of educational finance be overhauled to create greater fairness. One of the difficulties is related to the disparity in assessment wealth among Boards. The Macdonald Commission (1985) outlined the complexity of the issue pointing out on one hand:

> The issue of distribution of the commercial and industrial assessment is not simply the sharing between the public and separate school systems; rather, it is a sharing between the assessment-rich boards and the assessment-poor boards. The current limitations on separate school boards to requisition taxes on commercial and industrial assessment constitute a major cause of these disparities, apart from the geographic locations of the businesses and industries. (p. 41)

At the same time the Macdonald Commission noted:

> Fairness is the key consideration. . . Opponents to redistribution do not question the premise of fairness. . . They are concerned about those boards which will stand to lose substantial local revenues if their assessment base is reduced. . . (p. 41)

In this regard the basic problem with the grant mechanisms is that they are designed to ensure equity only to the "ceiling" established for ordinary expenditure. However, most boards in the province incur expenditures above this ceiling. For example the four boards in the Ottawa-Carleton region all spend above the ceiling. Table 11a gives the per-pupil expenditures above the weighted ceiling of the four boards from 1984 to 1988 in current and constant dollars. Table 11b converts these per-pupil above ceiling expenditures to constant dollars.

There is a disparity is the over ceiling expenditures of the four boards in the Ottawa-Carleton region. From 1983 to 1988 the Ottawa Board of Education (OBE) spent consistently above the grant ceiling. In 1988 at the elementary level for example, the above ceiling expenditure of the OBE was $ 1,666 (in actual dollars), in contrast to the substantially lower above ceiling expenditures of the Carleton Roman Catholic Separate School Board (CRCSSB) ($195). The above ceiling expenditures of the OBE were also significantly above those of the Carleton Board of Education(CBE); $913; and the Ottawa Roman Catholic Separate School Board (ORCSSB), $709.

Figure 12 illustrates the differences in over ceiling expenditures for the the four boards in the Ottawa-Carleton region from 1983 to 1988.

Table 11

Per-Pupil Expenditures Above Weighted Ceiling for the Ottawa Board of Education (OBE); the Carleton Board of Education (CBE); the Carleton Roman Catholic Separate School Board (CRCSSB); and the Ottawa Roman Catholic Separate School Board (ORCSSB), 1983-1988

11 a ACTUAL $ ABOVE CEILING ELEMENTARY EXPENDITURES PER-PUPIL

YEAR	CBE	OBE	CRCSSB	ORCSSB
1983	351	808	67	153
1984	388	858	181	179
1985	551	1,077	185	287
1986	627	1,231	270	291
1987	682	1,503	248	380
1988	913	1,666	195	709

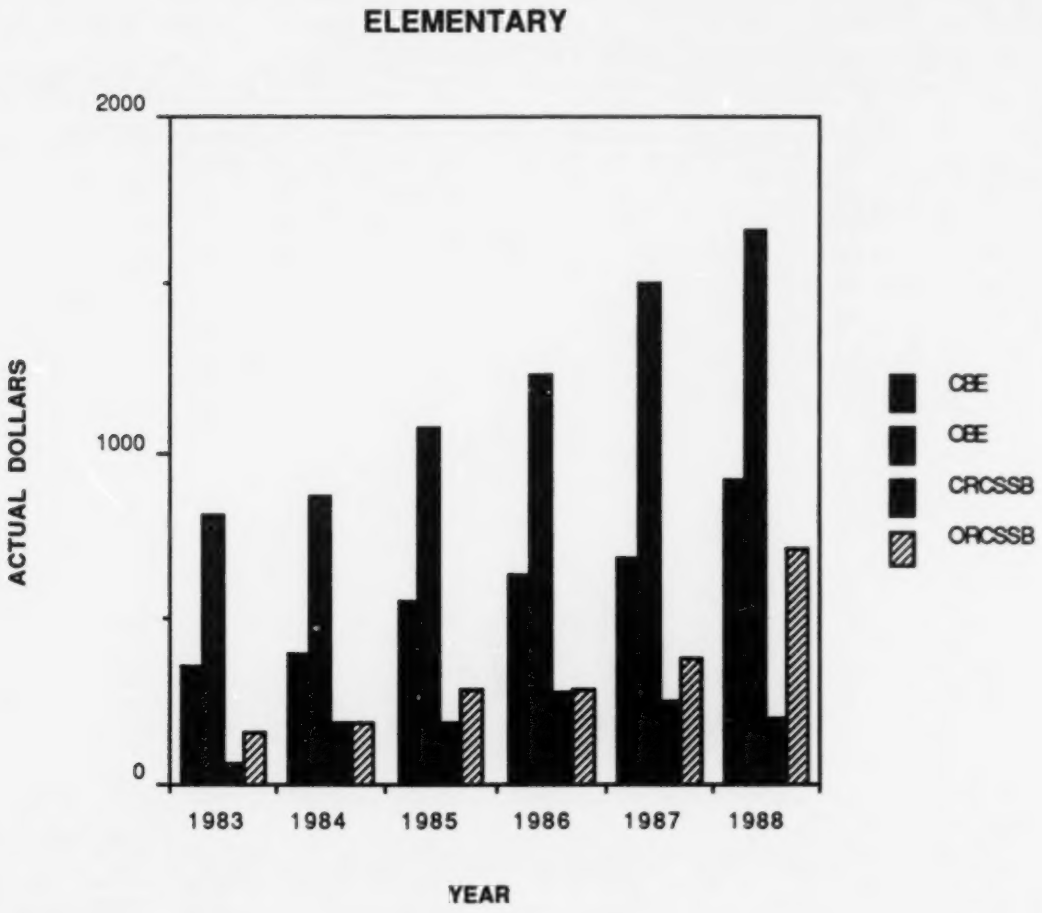
11b. REAL$ ABOVE CEILING ELEMENTARY EXPENDITURES PER-PUPIL

YEAR	CBE	OBE	CRCSSB	ORCSSB
1983	287	662	55	125
1984	303	671	142	140
1985	415	810	139	216
1986	452	888	195	210
1987	468	1,032	170	261
1988	599	1,092	1,28	465

Note: From Survey of School Board Financial Statements, 1983-1988. Ontario Ministry of Education.

Figure 12

Above Weighted Ceiling Spending by the CBE, OBE, ORCSSB, CRCSSB, 1983-1988



7. Assessment Base

Another factor influencing the expenditures of a school board is its assessment base.

a. What differences exist in the assessment bases of the four boards in the Ottawa-Carleton region?

The capacity of a board to generate revenues above the established ceiling, is primarily a function of the size of the board's assessment base. As well, the mix of assessment may be a very important influence on boards' expenditure decisions. Auld (1985) points out that while some current research in the United States proposes that differences expenditures between boards are neutral to wealth, this is not the case in Ontario. Wealth neutrality suggests that if there is a difference in per-pupil expenditures on education, these differences would be the result of local preferences and not due to differences in local tax bases or per-pupil assessments. Auld found that differences in per-pupil expenditures in Ontario's school districts could be accounted for by differences in per-pupil assessments (p. 198). In addition, the assessment mix influenced per-pupil expenditures. In Auld's study the higher the ratio of non-residential to residential assessment, the higher the per-pupil expenditure on education. Empirical studies explain this phenomena by noting that industrial/commercial taxation can, sometimes be "exported from the community were the taxes are imposed through increased product cost" (Auld, 1985, p. 187). In contrast, residential taxes cannot be exported. The implication is that school boards will find it easier to tax their industrial/commercial tax base than the residents who may be more likely to voice opposition to such taxes.

Auld's (1985) research suggests that even with the grants provided by the province, pupils attending schools in lower income assessment districts, where residential assessment is higher, are at a disadvantage as the result of lower per-pupil expenditures. Thus rural, northern, and separate school boards, possessing low commercial and industrial tax bases, and modest residential assessments, will be at a disadvantage in attempting to raise funds for expenditures. Lawton (1983) notes that there is a ratio of about "22:1 between the assessed value per-pupil of the wealthiest and poorest school boards" (p. 42). As an example of the effect such a variation in assessments has, Lawton points out that "for one of the low wealth boards, a rate of 8.17 mills and average tax increase of $408.50 is required to raise an additional $126 per-pupil, whereas one of the high wealth boards can raise this amount with an additional rate of 0.37 mills and an average tax increase of just $18.50" (p. 42).

The greatest inequities in educational expenditures, therefore, result from significant disparities in the relative abilities of boards to generate revenues from commercial and industrial assessments and residential assessments. Such inequities are found among the four Ottawa-Carleton board. When the boards' percentage of enrolments are contrasted to their percentage of the assessment bases, inequities in ability of the boards to raise revenues are highlighted. Table 12 compares the percentage of pupil population to percentage of commercial and industrial, and residential assessment in the four Ottawa-Carleton Boards

in 1987. These figures suggest that while the Ottawa Board of Education enrolled 29.7% of the students in the region, it drew from 74% of the available commercial and industrial assessment base, and 42% of the residential assessment base. In contrast, the Carleton Roman Catholic Separate School Board enrolled 19.2% of the students and drew from 2% of the commercial and industrial base and 2% of the residential assessment base. The Carleton Board of Education, with 38.4% of enrolments, the largest share of enrolments in the region, drew from only 16% of the commercial and industrial base and 37% of the residential assessment base. Similarly, the Ottawa Roman Catholic Separate School Board, with 12.7% of enrolments, only drew from 8% of the commercial and industrial assessment base and 13% of the residential base.

These assessment bases ultimately influence the sources of revenue which each board can draw from. Reflecting its very large assessment base,the Ottawa Board of Education, for example derived approximately 74% of its revenues from property taxes, gaining only 14% from provincial grants in 1986. In contrast, the Carleton Roman Catholic Separate School received 78% of its revenues from provincial grants. The Carleton Board of Education, with the largest share of the enrolments (38.4%) drew only 45% of its revenues from property taxes, and the Ottawa Roman Catholic Separate School Board gained even less of its revenue from property taxes (33.0%).

Despite its heavy dependence on property taxes, residential mill rates in the Ottawa Board of Education in 1986 were lower than the other boards, confirming the arguments by Lawton (1987) that high wealth boards can generate greater revenue by lower mill rates than can low wealth boards. Feldman et al. (1987) found, for example, that mill rates for education in Ottawa:

> ranged from 136.15 mills on residential property in Ottawa itself to 216.95 mills in Rockcliffe Park. In Carleton, residential mill rates ranged from 239.82 mills in Gloucester to 326.67 in Nepean. (p. 7)

When these figures are combined with the figures indicating the above ceiling expenditures of the boards the inequities become apparent. The capacity of the OBE to spend above the grant ceiling is directly related to its capacity to draw on a larger portion of the commercial and industrial tax base. This means that an important influence on a board's capacity to spend is its ability to generate revenues above those granted by the government. Specifically, boards with larger proportions of commercial and industrial tax bases are able to spend above the ceiling with the least impact on residential property owners.

Table 12

Comparison of Percentage of Pupil Population to Percentage of Commercial and Industrial Assessment and Residential Assessment and Distribution of Revenues for the Ottawa Board of Education (OBE); the Carleton Board of Education (CBE); the Carleton Roman Catholic Separate School Board (CRCSSB); and the Ottawa Roman Catholic Separate School Board (ORCSSB), 1986

DISTRIBUTION OF ENROLMENT AND ASSESSMENT (per cent)

	CBE	OBE	CRCSSB	ORCSSB
Enrolments	38.4	29.7	19.2	12.7
Residential Assessment	37.0	42.0	8.0	13.0
Commercial and Industrial Assessment	16.0	74.0	2.0	8.0

DISTRIBUTION OF REVENUES, 1986 (per cent)

Property Taxes	44.7	73.9	17.1	33.0
Provincial Grants	49.6	14.3	78.2	52.2
Other Revenue	5.7	11.8	4.7	14.3
Total	100.0	100.0	100.0	100.0

Note: From Feldman Report, p. 6, Toronto, 1987

Conclusions

This paper has addressed three questions commonly posed with regard to school board expenditures: How much do school boards spend on elementary education? What are these funds spent on? Why do the expenditures vary from board to board and from year to year? Comparisons of the per-pupil expenditures for the Carleton Board of Education, the Ottawa Board of Education, the Carleton Roman Catholic Separate School Board, and the Ottawa Roman Catholic Separate School Board from 1980 to 1988 identified several trends. These trends are summarized in Table 13.

The analysis of expenditures-per-pupil of the four boards in the Ottawa Carleton region suggests that expenditures have increased above the rate of inflation during the years from 1980 to 1988. As is generally the case, instructional expenditures accounted for the largest proportion of the expenditures of the four boards. Salaries, determined by an interaction of qualifications, experience and collective agreements, made up the bulk of the instructional costs.

Salary schedules and pupil-teacher ratios clearly have a major impact on school expenditures. In analyzing the real increases in per-pupil expenditures in Ontario from 1917-1981 Atherton (1985) proposes that most were accounted for by increases in teacher qualifications and reductions in pupil-teacher ratio. Atherton argues that:

> the question of the relationship between pupil-teacher ratio and qualifications of the teaching staff is a significant one in the areas of cost control since charges in these two variables account for all but 2% to 4% of the increase in real expenditures over a ten year period. (p. 59).

As a result, differences in teachers' salary schedules and pupil-teacher ratios must be considered in interdistrict comparisons of expenditures. In order to determine whether increases in costs reflect increases in quality (derived as the result of lower pupil-teacher ratios), or whether other factors may be at play, data on teachers' salaries, qualifications, and experience are required.

The capacity of the four board to spend was also influenced by trends in enrolments. The analysis of these trends in the Ottawa-Carleton region confirmed Lawton's (1989) argument that shifts from urban to suburban districts, and from public to separate school boards have occurred in Ontario. The grant structure also had an impact on the region's boards. The analysis in this paper confirms the view that the province has reduced the level of its support for education during the last decade.

Finally, the analysis reported in this paper also confirms a number of inequities arising as a result differences in the assessment bases of school boards. In an effort to deal with the inequities generated as the result of the disparities in tax assessment base, the Ontario government announced in May, 1989 that beginning in 1990 the local tax base will be shared equitably by all school boards in the same area. This means that commercial and industrial taxes will be pooled and equitably distributed to coterminous school boards. Across Ontario, thirteen school boards, for the most part large metropolitan boards, will lose revenue as the result of this measure. These boards will, however, be compensated

for these loses during the six year phase in process. In the case of the Ottawa-Carleton Boards the maior impact will be on the Ottawa Board of Education. The board's revenue, derived from the publicly traded corporations and utilities, will drop about seven percent Its coterminous board, the Ottawa Roman Catholic Separate School Board's revenues will rise about 31 % from 1990 to 1986 (Bell, 1989).

While these changes will have some impact on reducing inequities in tax bases of the boards in Ontario, the measures will not result in a provincial or even regional pooling of commercial and industrial tax bases. They do not, for example, address all the inequities in the ratio of pupil population to commercial and industrial assessments found in the Ottawa Carleton region as a whole. Despite their larger share of the enrolments in the region the Carleton Board of Education and its coterminous board, the Carleton Roman Catholic Separate School Board will only pool their relatively small share of the region's commercial and industrial tax base. Such inequities will mean that these boards will still be constrained in their ability to spend above grant ceilings.

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